THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1873.

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TO READERS AND CORRESPONDENTS.

All articles intended for the *Original Department* of this Journal must be contributed to it *exclusively*. The insertion elsewhere of *abstracts* of papers *prior* to the publication of the entire paper in this Journal is a violation of this rule. As original articles are *accepted only on this condition*, we consider those who favour us with contributions to be bound in honour to conform to it.

Contributors who wish their articles to appear in the next number, are requested to forward them before the 1st of November.

Compensation is allowed for original articles and reviews, except when illustrations or extra copies are desired. A *limited* number of extra copies (not exceeding *fifty*) will be furnished to authors, *provided the request for them be made at the time the communication is sent* to the Editors.

The following works have been received:—

Quarantaines. Par M. le Dr. LÉON COLIN, Médecin Principal de l'Armée. Extrait du Dictionnaire Encyclopédique des Sciences Médicales.

Die Orthopaedische Behandlung der Pott'schen Kyphose. Von CHAS. FAYETTE TAYLOR, A.M., M.D. Berlin: 1873.

A Treatise on the Continued Fevers of Great Britain. By CHARLES MURCHISON, M.D., LL.D., F.R.S., Phys. and Lecturer on the Prin. and Prac. of Medicine, St. Thomas's Hospital. Second edition. London: Longmans, Green & Co., 1873.

Observations on the Surgical Treatment of In-growing Toe-nail. By GEORGE STILWELL, Surgeon, Epsom. London: J. & A. Churchill, 1873.

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On the Causation of Sleep; A Physiological Essay. By JAMES CAPPIE, M.D. Edinburgh: James Thin, 1872.

Fever and Cholera from a New Point of View. By ALEXANDER SMITH, M.D., Edin., Staff Surgeon-Major. Calcutta: Wm. Smith, 1873.

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An Introduction to the Study of Clinical Medicine; being a Guide to the investigation of Disease. For the use of Students. By OCTAVIUS STURGES, M.D. Cantab., Assist. Phys. to the Westminster Hospital, etc. Philadelphia: Henry C. Lea, 1873.

Handbook of Physiology. By WILLIAM SENHOUSE KIRKES, M.D. Edited by W. MORRANT BAKER, F.R.C.S., Lect. on Phys., and Assist. Surgeon to St. Bartholomew's Hosp., etc. With two hundred and forty-eight illustrations. A new American, from the eighth enlarged English edition. Philadelphia: Henry C. Lea, 1873.

The Diseases of the Prostate; their Pathology and Treatment. Comprising the Jacksonian Prize Essay for the year 1860. By Sir HENRY THOMPSON, F.R.C.S., Surgeon Extraordinary to H. M. the King of the Belgians. Fourth edition. Philadelphia: Henry C. Lea, 1873.

A Manual of Medical Jurisprudence. By ALFRED SWAINE TAYLOR, M.D., F.R.S., Prof. of Med. Jurisprudence and Chemistry in Guy's Hospital. Seventh Am. edition, revised from the author's latest notes, and edited, with additional notes and references, by JOHN J. REESE, M.D., Prof. of Med. Jurisprudence and Toxicology in the Univ. of Penn. With illustrations on wood. Philadelphia: Henry C. Lea, 1873.

Chemistry, Inorganic and Organic; with experiments. By CHARLES LOUDON BLOXAM, Prof. of Chemistry in King's Coll., London, etc. From the second and revised English edition. Philadelphia: Henry C. Lea, 1873.

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Some Conclusions in regard to General Paresis, with the Report of a Case under Observation. By HORATIO R. BIGELOW, Boston, Mass.

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Biliary Secretion." By Wm. H. Doughty, M.D., Prof. of Mat. Med. and Therap. in Med. Coll. of Georgia, Augusta. Atlanta, 1873.

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Transactions of the Medical Society of the State of West Virginia. Wheeling, 1873.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland. April, 1873. Baltimore, 1873.

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Report of the Retreat for the Insane, at Hartford, Conn., April, 1873.

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Statistics of the State of Michigan, collected for the Census of the U. S., June, 1870. Lansing, 1873.

The following Journals have been received in exchange:—

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Archiv der Heilkunde, 1873. Drittes, Viertes, und Fünftes Heft.

Deutsches Archiv für Klinische Medicin. Elften Bd. 4, 5, and 6 Hft., 1873.

Centralblatt für die Medicinischen Wissenschaften. Nos. 25 to 39, 1873.

Allgemeine Wiener Medizinische Zeitung. Nos. 23 to 36, 1873.

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Giornale Italiano delle Malattie Veneree. Guigno, Agosto, 1873.

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O Correio Medico de Lisboa. Maio, Junho, Julho, 1873.

Archives Générales de Médecine. Juillet, Aout, Septembre, 1873.

Archives de Physiologie Normale et Pathologique. Juillet, Septembre, 1873.

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Revue des Sciences Médicale en France et de l'Etranger. Juillet, 1873.

Revue de Thérapeutique Médico-Chirurgicale. Nos. 12 to 17, 1873.

Revue Scientifique de la France et de l'Etranger. Nos. 50 to 52, and 1 to 10, 1873.

Gazette Hebdomadaire de Médecine et de Chirurgie. Nos. 24 to 36, 1873.

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The Half-Yearly Abstract of the Medical Sciences. January–June, 1873.

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The British and Foreign Medico-Chirurgical Review. July, 1873.

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Canada Medical and Surgical Journal. July, September, 1873.
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The Obstetrical Journal of Great Britain and Ireland. With an American Supplement. July, August, September, 1873.
The Boston Medical and Surgical Journal. July, August, September, 1873.
The New York Medical Journal. July, August, September, 1873.
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The American Journal of Obstetrics. August, 1873.
The American Journal of Insanity. July, 1873.
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The Buffalo Medical Journal. July, August, September, 1873.
Archives of Scientific and Practical Medicine. May, 1873.
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The Medical and Surgical Reporter. July, August, September, 1873.
Half-Yearly Compendium of Medical Science. July, 1873.
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The American Practitioner. July, August, September, 1873.
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The Chicago Medical Journal. July, August, September, 1873.
The Indiana Journal of Medicine. July, August, September, 1873.
The Detroit Review of Medicine and Pharmacy. July, August, September, 1873.
The St. Louis Medical and Surgical Journal. July, August, September, 1873.
The Northwestern Med. and Surg. Journal. July, August, September, 1873.
The Medical Herald. July, August, September, 1873.
The Kansas City Medical Journal. June, August, 1873.
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The Virginia Clinical Record. July, September, 1873.
Charleston Medical Journal and Review. July, 1873.
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Atlanta Medical and Surgical Journal. June, July, August, 1873.
The Richmond and Louisville Medical Journal. July, August, 1873.
The Nashville Journal of Medicine and Surgery. July, August, September, 1873.
The Sanitarian. July, August, 1873.
The American Journal of Pharmacy. July, August, September, 1873.
The Druggist's Circular. July, August, September, 1873.
The American Journal of Science and Arts. July, August, September, 1873.
The American Chemist. June, July, August, September, 1873.

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XII. Contributions to Practical Surgery. By George W. Norris, M.D., late Surgeon to the Pennsylvania Hospital, Vice-President of the College of Physicians of Philadelphia, Member of the Société Médicale d'Observation of Paris, etc. 8vo. pp. 318. Philadelphia: Lindsay & Blakiston, 1873. 457

XIII. The Pathology, Diagnosis, and Treatment of Diseases of Women, including the Diagnosis of Pregnancy. By Graily Hewitt, M.D. Lond., F.R.C.P., Professor of Midwifery and Diseases of Women, University College, and Obstetrical Physician to the Hospital, etc. etc. Second American from the third London edition, revised and enlarged. 8vo. pp. xxii., 751. Philadelphia: Lindsay & Blakiston, 1872.

Clinical Lectures on Diseases Peculiar to Women. By Lombe Atthill, M.D., University of Dublin, Obstetrical Physician to the Adelaide Hospital, Dublin, etc. etc. Second edition, revised and enlarged. 12mo. pp. xv., 241. Philadelphia: Lindsay & Blakiston, 1873. 463

XIV. Skin Diseases: their Description, Pathology, Diagnosis, and Treatment. By Tilbury Fox, M.D. Lond. Second American from the third London edition, rewritten and enlarged, with a Cutaneous Pharmacopœia, a Glossarial Index, and sixty-seven additional illustrations. 8vo. pp. xiv., 532. New York: Wm. Wood & Co., 1873. 468

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XVII. The Liverpool and Manchester Medical and Surgical Reports, 1873. Edited by S. Messenger Bradley, F.R.C.S., P. M. Braidwood, M.D., Reginald Harrison, F.R.C.S., Walter Whitehead, F.R.C.S.E. 8vo. pp. xviii., 216. Manchester: J. E. Cornish, 1873. 492

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THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1873.

ART. I.—*Cerebro-spinal Fever, with Facts and Statistics of the recent Epidemic in New York City.* By J. LEWIS SMITH, M.D., Physician to Infant's Hospital, Randall's Island; Consulting Physician to New York Infant Asylum; Consulting Physician to the Class of Children's Diseases, Bureau for the Relief of the Outdoor Poor, Bellevue. (With a wood-cut.)

CEREBRO-SPINAL fever, designated also spotted fever, tetanoid fever, and cerebro-spinal meningitis, is an epidemic constitutional disease, manifesting itself by lesions and symptoms which pertain chiefly to the nervous system. Descriptions of occasional epidemics, which appear to have been of this malady, have been left us by writers as far back as the 15th century, but it was not clearly discriminated from typhus on the one hand, and local inflammatory affections of the cerebro-spinal axis on the other, till after the present century commenced. Since 1805, when Vieusseux wrote upon it, styling it a new and unusual affection which neither he nor his colleagues had seen, numerous epidemics presenting great sameness of character, have been observed in Europe, Northern Africa, and North America. These have been minutely described by various writers, among whom in Europe, as especially deserving of notice, may be mentioned Dr. Sanderson, of London, and Prof. Hirsch, of Germany.

In this country epidemics of cerebro-spinal fever were fully described by various observers in the first quarter of the present century. The papers relating to them, from the pens of North and Strong in 1811, Gallop in 1815, and Miner in 1825, compare favorably with any similar productions during the same period in Europe. Since this time several excellent monographs relating to cerebro-spinal fever have appeared in this country, and the medical journals contain numerous reports of cases.

So much has, indeed, been written on this disease during the last two decades, that it may seem an unneeded and superfluous work to add anything to the literature of the subject. But when we recollect that some of the best monographs which we possess relating to it, were written by those who have seen but few cases, and some of whom, like Sanderson, travelled to a distance to observe them, we physicians of this country, now that we have had an ample opportunity to observe cases at home in a wide-spread epidemic, with those recent aids in the study of diseases, namely, the thermometer and ophthalmoscope, ought certainly to make known our observations to the profession. Moreover few diseases more urgently demand elucidation than this, for while it is very fatal, there is a discrepancy in the views of physicians in regard to its causes, nature and proper treatment. As cerebro-spinal fever results from some pervading cause, probably as we will see atmospheric, we would expect to observe effects of this cause, in some other way, in addition to the disease of which we are treating. Accordingly, the histories of at least a portion of the epidemics of cerebro-spinal fever show an unusual prevalence of pneumonias of an ataxic type, and sometimes also of pharyngitis, in addition to the cerebro-spinal disease, and this disease is sometimes complicated by congestion, and less frequently by inflammation of the lungs. The prevalence of typhoid pneumonias during cerebro-spinal fever was long ago observed. Thus, in Bascome's history of epidemics, it is stated that "epidemic encephalitis and malignant pneumonias prevailed in Germany (Webber) in the 16th century." In this country, in the epidemics of cerebro-spinal fever from 1811 to 1815, pharyngeal and pneumonic inflammations were unusually frequent. In more recent epidemics observers have not so often, but have occasionally, recorded the prevalence of pneumonias in connection with cases of the cerebro-spinal disease. Accordingly, Webber, who has examined the histories of the various epidemics, describes in his prize essay a second variety of cerebro-spinal fever, which he designates pneumonic, in which the cerebro-spinal axis is involved but slightly, or not at all, and the brunt of the disease falls upon the respiratory organs. In certain epidemics, according to him, the pneumonic form is common, while in others it is infrequent.

During the time when the recent epidemic in New York City was at its maximum, an unusually large number of cases of pleuro-pneumonia of an asthenic type, and I may add, I think, of pharyngitis, occurred; and while cerebro-spinal fever rarely affected those above the age of fifty years, many of those with pneumonia were old people. According to the statistics of the New York Health Board, there were 1707 deaths from diseases of the respiratory organs, exclusive of phthisis, during the four months from February 1st to June 1st, 1872, when the epidemic of cerebro-spinal fever was at its height, while during the remaining eight months of the year there were only 1336 deaths from the same diseases; and I need not add

that deaths from affections of the respiratory apparatus are largely from pneumonia. Moreover, I am of opinion, from my own observations, that many of the cases of pneumonia, during that period, presented symptoms of greater gravity than usually accompany this form of inflammation of the same extent. The patients were greatly prostrated from the first, and in some of them febrile movement, muscular pains, restlessness, or delirium preceded for hours or even days the pneumonic symptoms, affording evidence that the lung disease, if not due entirely to the same atmospheric conditions which give rise to cerebro-spinal fever, was at least under their influence. Although it is probable that pneumonia occurring during an epidemic of cerebro-spinal fever is in most instances a strictly local malady, as it is at ordinary times, more or less modified perhaps by the epidemic influence, there can be little doubt that Webber's view is correct, that there are occasional cases of true cerebro-spinal fever, in which the local manifestations are chiefly in the lungs; cases in which the cerebro-spinal affection is of less importance apparently than the pulmonic. The following case which occurred in my practice is an example.

Mrs. L., aged about 25 years, suckling her infant, and of rather delicate health, was seized on June 8th with pain in the head and right subaxillary region. In two or three hours the pain of the thorax ceased, but that in the head continued and was very severe. On the 9th there was little change in the symptoms, the patient complaining only of the violent frontal headache. At my first visit, which was on the 10th, Mrs. L. stated that objects were indistinct, but the appearance of the eyes was normal; pulse 118, temp. 105°; evening, pulse 104, temp. 102°. The patient moaned, and obtained little or no sleep in consequence of the severity of the headache. Treatment, potass. bromid. gr. xxv, every three or four hours, ice to head, sinapism to nucha. On the 11th she seemed better; there was a remission of the symptoms, and for two hours she was entirely free from headache. The remission was succeeded by a chill, followed by severe pain in the head, in the right mammary or subaxillary region, and in the right shoulder.

12*th*. Symptoms the same, pulse 112.

13*th*. The pain in the head has ceased, but that in the right side of the chest is more severe, and respiration is accompanied by a moan; resp. 32, pulse 116, temp. 105°. There is rigidity of the muscles of the nucha, so that it is impossible to bring forward the head upon the chest. Attempts to do it are painful, and the shoulders move with the head. There are general hyperæsthesia and well-marked physical signs of pleuro-pneumonia of the right lower lobe. *Diagnosis:* cerebro-spinal fever, with spinal meningitis and pleuro-pneumonia.

14*th*. Has no pain except that of the chest; pulse 114, temp. 105°; evening, pulse 132.

15*th*. Pulse 136; resp. 48, with an expiratory moan; temp. 104¼°; muscles of the nucha still contracted, preventing anterior movement of the head; still has general hyperæsthesia, but no headache; tongue moderately furred and rather dry; appearance of eyes normal; has had no vomiting; little or no delirium, and no cutaneous eruption. Treatment, quiniæ sulph. gr. iv, every four hours, alternately with gr. xxv of bromide of potassium; nutritious diet and alcoholic stimulants.

16*th*. Pulse 128; resp. 52; temp. 104¾°; entire lower lobe of right lung is solidified; evening, pulse 140, feeble. Death occurred June 17th.

In this case the violent headache, dimness of sight, marked stiffness of the muscles of the nucha, and the hyperæsthesia indicated cerebro-spinal fever as the disease, and yet the cerebral symptoms abated in a few days, and the prominent local symptoms in the last of the sickness were due chiefly to the pneumonia. In another case, which was visited by three prominent physicians of this city, who agreed in the diagnosis of cerebro-spinal fever, pneumonia of the right lung was suddenly developed at about the sixth or seventh day. The chief symptoms subsequently were referable to the pneumonia, and when this abated the patient recovered.

Cause.—Does it emanate from the soil? The following facts demonstrate that it does not, to wit: most of the epidemics commence in winter when the ground is frozen; the disease occurs in valleys and on hilltops, and upon all varieties of soil; it invades one district, passes over another adjoining, and affects, perhaps, a third beyond, although the geological formation of all is the same.

Does the cause exist in the diet, as some competent observers have supposed? The following facts, I believe, are sufficient to justify a negative answer: Of two adjacent localities, in which the nature of the diet of the inhabitants is the same, one escapes and the other is visited by the epidemic; an epidemic sometimes prevails here and there over an area of many thousand miles, as recently in North America. It is hardly reasonable to suppose that any deleterious property would occur in the food over so wide a territory. An epidemic ceases, although the food of the people continues the same. Infants at the breast, having only the mother's milk, are sometimes affected, and likewise certain animals, whose food is very different from that of man, and finally the most careful examinations have hitherto failed to discover any change in the cereals, or other food, or noxious principle sufficient to explain the occurrence of the disease over a wide extent of territory.

There can, therefore, be little doubt that the cause exists in the atmosphere, though so subtle that we may never be able to detect it. Cerebro-spinal fever is indeed one of many examples in corroboration of the statement made by Humboldt, that there is no subject of scientific inquiry more obscure than the laws which control epidemics. Among the meteorological conditions which favor the occurrence of this disease, cool weather has already been alluded to. Statistics collected in France and the United States show that, while 166 epidemics occurred in the six months commencing with December, only 50 occurred in the remaining six months of the year. According to Prof. Hirsch, whose statistics were obtained largely from Central Europe, there were 57 epidemics in winter or winter and spring, 11 in spring, 5 between spring and autumn, 4 commencing in

autumn and extending into winter or winter and spring, and 6 lasting through the entire year.

All observers have remarked the fact that anti-hygienic conditions, though obviously subordinate to the unknown atmospheric cause, nevertheless strongly predispose to this disease. Hence, soldiers in barracks and the poor in tenement houses suffer most severely. During the recent epidemic in New York, unusually severe or multiple cases occurred for the most part where there were obvious anti-hygienic conditions, as in apartments which were unusually crowded and filthy or in tenements around which refuse had collected or which had defective drainage. The interesting chart, prepared under the direction of Dr. Moreau Morris for the Health Board, shows that comparatively few cases occurred in those portions of the city where the sanitary conditions were good. I can not, however, agree with Prof. Hirsch that the greater crowding, domiciliary and personal uncleanliness, and imperfect ventilation in the cool than in the warm months, explain the fact that epidemics occur chiefly in winter and early spring; for in clean and well-ventilated apartments in sparsely settled and salubrious localities, epidemics occur for the most part in these seasons. Anti-hygienic conditions probably predispose to this disease in the same way and no more than to any other grave epidemic which happens to be prevailing, as for example to Asiatic cholera, whose ravages are largely in the crowded and uncleanly quarters of the poor.

Is cerebro-spinal fever propagated by contagion?—It is the almost unanimous opinion of those who are most competent to judge from their observations, that it is either not contagious or is so only in a very slight degree. It is certain that the vast majority of cases occur without the possibility of personal communication. Thus, in the commencement of an epidemic, the first patients are affected here and there at a distance from each other, often miles apart, and throughout an epidemic usually only one is seized in a family. Children may be around the bedside of the patient, passing in and out of the room without restriction, and yet we can confidently predict that none of them will contract the disease if there are proper ventilation and cleanliness. And when two or more cases occur in a family, it commences at such irregular intervals in the different patients that the presumption is strong that they receive it from the same extraneous source, and not one from the other, for contagious diseases usually have a pretty uniform incubative period. Thus, in the Brown family treated by Dr. Sewall (*N. Y. Med. Record*, July 1, 1872), the first child sickened January 30th, and the remaining five children at intervals respectively of 5, 7, 11, 25, and 45 days. The following have been my observations relating to this point:—

Single cases, No. 39 (4 adults).

Two in a family, No. 16 (8 families).

Three in a family, No. 3 (1 family).

In most of the 39 families in which single cases occurred, there were children who were allowed free intercourse with the patients. Is there any other malady of childhood known to be infectious, which affords such a record of non-contagion? In those instances in which two in a family took the fever, those who were last attacked did not seem to receive it from those who were first affected, for the reason already stated, namely the very variable intervals between the two cases in the different families. The facts in the family in which three cases occurred, did seem to lend support to the doctrine of contagion. A boy twelve years of age died of cerebro-spinal fever, and was buried on Saturday or Sunday. On the following Monday the mother washed the linen of the boy, which had accumulated, and within two days was herself affected with the disease. She and her infant, who was also seized with it, died. Were such cases frequent or not infrequent, the argument in favor of contagion would certainly be strong; but as they are infrequent it is proper to accept any other reasonable explanation instead. The state of the bedding and apartments, as observed by me, was such as to render the atmosphere in which this family lived noxious in a high degree, and therefore such as to attract the prevailing epidemic. Moreover, the mother, exhausted by her long watching, and deprived of needed sleep (for the boy was several days sick), instead of obtaining the required rest, rendered her system more liable to the fever by her self-imposed duties on the day following the burial. These manifest anti-hygienic conditions appeared quite sufficient, without the aid of any contagious principle, to explain the occurrence of the cases in this severely visited family. My statistics, therefore, harmonize with the doctrine of non-contagiousness, but it is obviously very difficult to determine from clinical experience whether an epidemic constitutional disease is absolutely non-contagious, or contagious in a very low degree. Cerebro-spinal fever is one or the other, but if contagious it is apparently less so than either typhoid fever or Asiatic cholera.

Allusion has been made to the fact that this malady sometimes occurs among the lower animals. In the epidemic of 1811 in Vermont, Dr. Gallop remarks that even the foxes seemed to be affected, so that they were killed in numbers near the dwellings of the inhabitants. The recent epidemic in New York, it is well known, prevailed among horses several months before it occurred among the people. It was common and fatal in the large stables of the city car and stage lines in 1871, while among the people the epidemic did not properly commence, although there were previously isolated cases, till January, 1872. It has been asked, whether in epidemics like this, in which the lower animals are first affected, the disease may not be communicated from them to man? This obviously brings up the question of contagiousness. From my own observations I should certainly answer in the negative, for I have not been able to ascertain that those who had charge of the affected horses in the recent

epidemic, as the veterinary surgeons or stablemen, were any more liable to the fever than others, who were not so exposed. They apparently were not, and we must, therefore, believe that this disease is not propagated from one species of animals to another, certainly no more than from one animal to another in the same species, and the fact that different animals are affected by the epidemic is due to the potent and pervading nature of the cause. Cerebro-spinal fever is indeed, so to speak, pandemic in a double sense; on the one hand affecting both sexes, different ages, and all conditions of people over a wide extent of territory, and on the other hand different species of animals, but with little or no contagiousness.

Not infrequently we are able to discover some exciting cause of the fever, usually an exhausting or perturbating influence of some sort. An individual, whose system is affected by the epidemic influence, and is therefore predisposed to the disease, may, perhaps, escape by a quiet and regular mode of life; but if there is an exciting cause of the nature alluded to, the fever may be developed. Among these exciting causes may be mentioned overwork, fatigue, mental excitement, prolonged abstinence from food, followed by over-eating, and the use of indigestible and improper food. Thus, in one instance in my practice, a delicate young woman at the head of one of the departments in a well-known Broadway store, was anxious and excited and her energies overtaxed at the annual re-opening. Within a day or two subsequently the disease commenced. Another patient, a boy, was seized after a day of unusual excitement and exposure, having in the mean time bathed in the Hudson when the weather was quite cool. During the recent epidemic in New York those children seemed to me especially liable to be attacked who were subjected to the severe discipline of the public schools, returning home fatigued and hungry, and eating heartily at a late hour. In one instance which I observed, a school-girl of 10 years returned from school excited and crying, because she had failed in her examination and was not promoted. In the evening, after she had closely studied her lessons, the fever commenced with violent headache. Dr. Frothingham (*Am. Med. Times*, April 30, 1864) writes as follows of the brigade in which cerebro-spinal fever occurred in the Army of the Potomac: "Under Gen. Butterfield, a stern disciplinarian, * * the men were drilled to the full extent of their powers—often to exhaustion. I did not at the time recognize this as a cause of the disease in question, but I learn that in the present epidemic in Pennsylvania the attack generally follows unusual exertion and exposure to cold." Observers have long recognized the fact of such exciting causes. Dr. Gallop, in his history of the epidemic in Vermont in 1811, directs attention to the severity of the disease among the troops under General Dearborn, who were fatigued by marches, and greatly dispirited by a repulse which they had sustained from the British.

Sex.—It is stated by writers that more males are affected than females.

Hospital and military statistics show this; but in family practice, in which a large proportion of the patients are children, the number of males and females is about equal. Thus in 75 cases occurring in the 20th and 22d wards, mainly in the practice of two other physicians and myself, I find that there were 39 males and 36 females. Sixty-four of these were children. From January 1st to November 1st, 1872, 905 cases in which the sex was stated were reported to the Health Board. Of these 484 were males, and 421 females. Dr. Sanderson's statistics of the epidemic in the provinces around the Vistula, the cases being chiefly children, give also but a slight excess of males. Probably, therefore, the sex under the age of puberty makes no difference in the liability to this disease, and the same may be said of all other constitutional affections. Men are more liable than women, only when they lead a more irregular life, and are subject to more privations and exposures.

Age.—Children, as already stated, are much more liable to cerebro-spinal fever than adults. The following are the statistics of the Health Board relating to this point, the cases occurring in 1872:—

Under 1 year	125
From 1 to 5 years	336
" 5 " 10 "	204
" 10 " 15 "	106
" 15 " 20 "	54
" 20 " 30 "	79
Over 30 years	71
Total	975

In the statistics which I have obtained of 81 cases occurring in the 20th and 22d wards, the ages were as follows:—

Under 1 year	8
From 1 to 3 years	18
" 3 " 5 "	20
" 5 " 10 "	17
" 10 " 15 "	7
Over 14 years	11
Total	81

It is seen that nearly three-fourths of the whole number of cases in the recent epidemic in New York City were under the age of ten years. The statistics of other epidemics occurring in civil practice is similar. Thus Dr. Sanderson, in examining the mortuary statistics of the epidemic in Germany, ascertained that there had been 218 deaths under the age of fourteen years, and only 17 above that age, and although this does not show the exact ratio of children to adults, in the entire number of cases it is apparent that children greatly preponderated.

The more advanced the age after childhood, the less the liability to this disease; so that after the middle period of life few cases occur, and after the age of fifty years there is nearly an immunity. The oldest two, of

whose cases I have the record in the recent epidemic, had attained the ages respectively of 47 and 63 years.

Symptoms.—During epidemics of cerebro-spinal fever, we are now and then called to patients who present certain of the characteristic symptoms, but in so transient and mild a form that they are soon restored to health. The fever is said to have aborted. I have met the following cases:—

A boy of eight years, previously well, was taken with headache, vomiting, and moderate febrile movement on April 2d, 1872. The evacuations were regular, and no local cause of the attack could be discovered. On the following day the symptoms continued, except the vomiting, but he seemed somewhat better. On April 4th the febrile movement was more pronounced, and in the afternoon he was drowsy and had a slight convulsion. The forward movement of his head was apparently somewhat restrained. On the 6th the symptoms had begun to abate, and in about one week from the commencement of the attack his health was fully restored.

A boy six years old was well till the second week in May, 1872, when he became feverish, and complained of headache. At my first visit, May 14th, he still had headache, with a pulse of 112. The pupils were sensitive to light, but the right pupil was larger than the left. The bromide and iodide of potassium were prescribed, with moderate counter-irritation behind the ears. The headache and febrile movement in a few days abated, the equality of the pupils was restored, and within a little more than a week from the first symptoms he fully recovered.

Obviously the diagnosis, when symptoms are so mild, must sometimes be doubtful; but as observers in different epidemics report such cases, it seems proper to regard them with perhaps occasional exceptions as genuine, but aborted cases. The epidemic influence acts so feebly on these patients, or their ability to resist it is so great, that they escape with a short and trivial ailment.

Occasionally, also, during the progress of an epidemic, we meet patients who present more or fewer of the characteristic symptoms, but in so mild a form that they are never seriously sick, and never entirely lose the appetite, but the disease, instead of aborting, continues about the usual time.

Thus, on the 4th of January, 1873, I was called to a girl of thirteen years, who had been seized with vomiting followed by headache in the last week in December. During a period of six to eight weeks, or till nearly the first of March, she presented the following symptoms: daily paroxysmal headache, often most severe in the forenoon, neuralgic pain in the left hypochondrium, and sometimes in the epigastric region; pulse and temperature sometimes nearly normal, and at other times accelerated and elevated, both with daily variations; inequality of the pupils, the right being larger than the left during a portion of the sickness. This patient was never so ill as to keep the bed, usually sitting quietly during the day in a chair, or reclining on a lounge, and she never fully lost her appetite. Quinia had no appreciable effect on the paroxysms of pain or fever.

There can, in my opinion, be little doubt that this girl was affected by the epidemic, but so mildly that there was, for a considerable time, much

uncertainty in the diagnosis. Cases like this, in which the disease is so feebly developed, and those in which it aborts, though they deserve recognition, evidently should not be employed in the statistics.

Mode of Commencement.—In all the cases which I have observed, cerebro-spinal fever commenced between 12 M. and 6 A.M., and in the records of cases published by others the time of commencement, so far as I have observed, was between the same hours. The fact that this disease does not commence after the repose of night till several hours of the day have passed, shows the propriety, as we shall see hereafter, of enjoining a quiet and regular mode of life, free from excitement, and with sufficient hours of sleep during the time that the epidemic is prevailing.

Cerebro-spinal fever usually has no premonitory stage, or it is so slight as to escape notice. Exceptionally there are certain premonitions for a few hours or days, such as languor, chilliness, etc. Premonitions occur more frequently in mild than in severe forms of the fever. The ordinary mode of commencement in a typical or somewhat severe case is as follows: The patient has a rigor or chill, or rarely two or three of them at irregular intervals of some hours. One patient, an adult female, had three or four pretty severe chills, the last occurring, from recollection, as late as the fourth day. Children often have clonic convulsions in place of the chill, or immediately after it, partial or general, slight or severe. Apathy, more or less profound stupor, or less frequently delirium succeeds In the gravest cases semi-coma occurs, from which the patient is with difficulty aroused, or profound coma, which, in spite of prompt and appropriate treatment, may prove speedily fatal. If aroused to consciousness, he now complains of violent headache, with or without, or alternating with equally, severe neuralgic pains in the neck, some part of the trunk, or in one of the extremities. The pupils are dilated, or less frequently contracted, and they respond feebly, or not at all, to light. Often they oscillate, and occasionally one is larger than the other.

Vomiting, with little apparent nausea, is also an early and prominent symptom, evidently having a cerebral origin. It occurred as an initial symptom in 51 of 56 cases observed by Dr. Sanderson. Of 61 cases observed by Dr. Sewall and myself, neither its presence nor absence was recorded in 13 cases, its absence in only 1, and its presence as an early symptom in 48 cases.

Unlike typhus and typhoid fevers the temperature is usually as elevated, and sometimes more so, on the first day than subsequently. Indeed, the highest temperature which I have observed in any case, was only two or three hours after the commencement of the attack in a child of three years, namely a temperature of 107⅘°.

Exceptionally the initial symptoms occur in a more gradual manner, becoming by degrees more severe, so that a few days elapse before they are so pronounced that a clear diagnosis is possible. The febrile movement,

headache, neuralgic pains, lassitude, vomiting, and fretfulness, though pretty uniformly present in the commencement, are not in these cases so severe at this period as to excite any apprehension.

Symptoms Pertaining to the Nervous System.—Pain, already described as an initial symptom, continues during the acute period of the malady. It is ordinarily severe, eliciting moans from the sufferer, but its intensity varies in different patients. Its most frequent seat is the head, where it may be frontal, or occipital. It is described as sharp, lancinating, or boring. It is also common in the neck, especially the nucha, the epigastrium, umbilical and lumbar regions, in one or more of the limbs, and along the spine (rachialgia). It shifts from place to place, but it is commonly more persistent in the head and along the spine than elsewhere. The patient, if old enough to speak, and not delirious or too stupid, often exclaims, Oh my head! from the intensity of his suffering, but after some moments complains equally of pain in some other part, while perhaps the headache has ceased, or is milder. In a few instances the headache is absent, or is slight and transient, while the pain is intense elsewhere. After some days the pains begin to abate, and by the close of the second week they are much less pronounced than previously. Vertigo occurs with the headache, so that the patient reels in attempting to stand or walk. Contributing to the unsteadiness of the muscular movements is a notable loss of strength, which occurs early and increases.

The state of the patient's mind is interesting. It is well expressed in ordinary cases by the term apathy or indifference, and between this and coma on the one hand, and acute delirium on the other, there is every gradation of mental disturbance. Sometimes patients seem totally unconscious of the words or presence of those around them, when it appears subsequently that they understood what was said or done. Delirium is not infrequent, especially in the older children and adults. Its form is various, most frequently quiet or passive, but occasionally maniacal, so that forcible restraint is required. It sometimes resembles intoxication, or hysteria, or it may appear as a simple delusion in regard to certain subjects. Thus one of my patients, a boy of five years, appeared for the most part rational, protruding his tongue when requested, and ordinarily answering questions correctly, but he constantly mistook his mother, who was always at his bedside, for another person. Severe active delirium is commonly preceded by intense headache. In favourable cases the delirium is usually short, but in the unfavourable it is apt to continue with little abatement till coma supervenes.

On account of the pain and disordered state of mind, patients seldom remain quiet in bed, unless they are comatose, or the disease is mild, or so far advanced that muscular movements are difficult from weakness. In severe cases they are ordinarily quiet a few moments as if slumbering, and then aroused by the pain roll or toss from one part of the bed to another.

One of my patients, a boy of five years, repeatedly made the entire circuit of the bed during the spells of restlessness. In mild cases patients lie quiet, usually with their eyes closed, except when disturbed.

All writers record a general hyperæsthesia of the skin. Few patients that are not in a state of profound coma are free from it during the first weeks, and it increases materially the suffering. Frictions upon the surface, and even slight pressure with the fingers upon certain parts, extort cries. Gently separating the eyelids for the purpose of inspecting the eyes, and moving the limbs, or changing the position of the head, evidently increase the suffering, and are resisted. I have sometimes observed such outcries from slowly introducing the thermometer into the rectum, that I was forced to believe that the anal, and perhaps rectal, surface was also hyper-sensitive. The hyperæsthesia has diagnostic value, for there is no disease with which cerebro-spinal fever is likely to be confounded in which it is so great. It is due to the spinal meningitis, and is appreciable even in a state of semi-coma.

Tonic contraction of certain muscles, or groups of muscles, is present in all typical cases. In a small proportion of patients it is absent, or is not a prominent symptom, namely, in those in whom the encephalon is mainly involved, the spinal cord and meninges being but slightly affected, or not at all. This contraction is most frequent and marked in the muscles of the nucha, causing retraction of the head, but it is also common in the posterior muscles of the trunk, producing opisthotonos, and in less degree in those of the abdomen and lower extremities, and hence the flexed position of the thighs and legs, in which patients obtain most relief. The muscular contraction is not an initial symptom. I have ordinarily first observed it about the close of the second day, but sometimes as early as the close of the first day, and in other instances not till the close of the third day. Attempts to overcome the rigidity, as by bringing forward the head, are very painful, and cause the patient to resist. In young children having a mild form of the fever with little retraction of the head, the

rigidity is sometimes not easily detected. I have been able in these cases to satisfy myself and the friends of its presence, by observing the difficulty with which the head is brought forward on presenting to the patient a tumbler with cold water, which is craved on account of the thirst. The usual position of the patient in bed is with the head thrown back, the thighs and legs flexed, with or without forward arching of the spine (see figure). The muscular contraction continues from three to five weeks, more or less, and abates gradually; occasionally it continues much longer. Through the kindness of Dr. Griswold, of 30th Street, I was allowed to see an infant of seven months in the tenth week of the disease. It exhibited great fretfulness, decided prominence of the anterior fontanelle, probably from intra-cranial serous effusion, and marked rigidity of the muscles of the nucha with retraction of the head.

Paralysis occasionally occurs, but is less frequent than we would be led to expect from the nature of the lesions. It may occur early, but it is more frequently a late symptom. It may be limited to one or two of the limbs, as a leg, or arm and leg, or it may be more general. Thus a man treated by Dr. Law in the Dublin epidemic of 1865 could move neither arms nor legs, and Wunderlich saw a patient who had paralysis of both lower extremities and a considerable part of the trunk. As the paralysis is due to inflammatory processes in the cerebro-spinal axis, it usually disappears in a few weeks as the inflammation abates, and convalescence is established, but it may be more protracted. Thus in Wunderlich's case there was only partial recovery after the lapse of five months.

Digestive System.—The tongue is ordinarily lightly covered with a whitish fur. Occasionally in cases attended with great prostration the fur is dry and brown, but only for a few days, when the moist whitish fur succeeds. The habitual brownish and dry fur on the tongue, and sordes upon the teeth, so common in typhus and typhoid fevers, are seldom observed in uncomplicated cases of this disease. Vomiting, which I have described as an initial symptom, usually ceases in a few hours, or not till the lapse of several days, and it frequently recurs at intervals during the periods of recrudescence, which are common in the progress of the fever. It occurs with little effort, often like a regurgitation, as is common when this symptom has a cerebral origin. The ejecta consist at first of the contents of the stomach, and afterwards partly of bile. It does not differ as a symptom from the vomiting which is so common in sporadic meningitis, having a similar origin in a sensation of faintness or depression referred to the epigastrium.

The appetite is poor or entirely lost during the active period of the malady, and it is not fully restored till convalescence is well advanced. On account of the imperfect nutrition, patients progressively waste, and when the case is protracted there is always notable emaciation. Thirst, already alluded to, and more or less constipation are common, but the latter readily

yields to purgatives. On the other hand diarrhœa sometimes precedes and accompanies the disease. I observed this in a few instances in 1872, when the weather had become warm. The patients were young children.

Pulse.—The pulse in children is constantly accelerated. Even in mild cases it is rarely below 100 per minute, and its ordinary range is from 112 to 160. I have seventy-five recorded observations of the pulse in children who recovered, taken before there was any decided improvement. The maximum pulse in these observations was 168 per minute, which was on the first day; the minimum 82, and the average 123. The more severe and dangerous the attack, the greater the frequency of the pulse, unless occasionally in the comatose state. But even in profound coma the pulse was in my observations accelerated, and as death drew near, however great the stupor, it was progressively more frequent and feeble. Intermissions in the pulse do not seem to be as frequent as in sporadic meningitis. The pulse is liable to daily variations in frequency which occur suddenly and without appreciable cause. The following consecutive enumerations of the pulse in four favorable cases which I have selected as typical will give an idea of these variations :—

1st case, an infant of 14 months, 168, 120, 108, 120, 140, 150, 136, 128, 120.
2d case, an infant of 2 years, 136, 152, 130, 132, 136, 140, 152, 140, 136, 148.
3d case, a boy of 6 years, 120, 120, 88, 84, 92, 124, 128, 120.
4th case, a girl of 4 years, 116, 100, 124, 116, 120, 136, 140, 128, 128, 104.

I have preserved observations of this symptom made daily in nine fatal cases, and these show similar fluctuations in the frequency of the heart's contractions. The patients were children, all dying comatose. The maximum pulse in these observations was 204, which was on the first day; the minimum 88, and the average 140. The following are the consecutive enumerations of the pulse usually made twice daily in two of these cases. It will be seen that there was not only greater frequency of the pulse, but fluctuations from day to day similar to those in the favorable cases :—

1st case, age 8 months, 204, 164, 116, 160, 164.
2d case, age 2 years 8 months, 192, 168, 200, 152, 160.

In most inflammatory and febrile diseases exacerbations commonly occur in the latter part of the day, but in this disease they do not seem to be influenced by the time of day, so that sometimes the temperature is highest and pulse most frequent in the morning, sometimes in the evening, and then again at midday.

In favorable adult cases the pulse often remains under 100, and in certain patients it scarcely has more than the normal frequency, but if the type is severe it rises to 110, 120, or over. In the adult, as in the child, as death approaches, the pulse becomes more and more frequent and feeble, and it seldom even in the most asthenic cases has the fulness and force observed in idiopathic inflammations.

Temperature.—Certain of the older observers before the day of clinical

thermometry asserted that the temperature is not increased. North remarked as follows: "Cases occur, it is true, in which the temperature is increased above the normal standard, but these are rare," and Foot and Gallop made similar statements. I am surprised also that some of the recent writers state that febrile movement is often absent. Thus, in a well-written American treatise bearing the date 1873, it is stated "that febrile symptoms do not necessarily belong to epidemic cerebro-spinal meningitis as a substantive disease, for it may and not unfrequently does occur without exhibiting any such symptoms." (Lidell.)

I have no doubt from the nature of cerebro-spinal fever, and from thermometric examinations, which I have made now in more than fifty cases, that there is always an elevation of the internal temperature above the normal standard during the active period of the disease. I have never observed a temperature of less than 99½° if the examination were made within the first fourteen days, and the reason that certain other observers state differently is probably because they have taken the temperature of the cutaneous surface, which is very fluctuating and is often much below that of the blood. The temperature should be ascertained *per rectum*, where it corresponds pretty nearly with that of the blood. In one instance I supposed that I had met a case in which the temperature was not elevated, and I cite it as showing the liability to error in the thermometric examinations of these cases: A female patient, forty-seven years old, three days' sick and comatose, whom I was allowed to examine with the family physician, exhibited no elevation of temperature when the instrument was placed in the mouth and in the axilla, but on introducing it into the rectum it rose to 99½°.

The internal temperature, although uniformly elevated, undergoes greater and more sudden variations than occur in any other febrile or inflammatory disease. These fluctuations, which correspond with similar changes in the pulse, are observed during the different hours of the same day. I have in the statistics of my practice 146 observations of the temperature in 35 patients taken before the close of the second week. The highest I have already stated in speaking of the mode of commencement, namely 107⅘° in a child of two years. It fell a little subsequently, but rose again on the third day to 107°, when she died. In two other cases the temperature was 106° on the first day, and it did not afterwards reach so high an elevation. One of these died on the ninth day, and the other in the ninth week. The next highest temperature was 105⅘°, also on the first day in an infant of eight months, who died on the ninth day. The first and last of these cases occurred in the same wooden tenement-house in the suburbs of the city and upon an elevated outcropping of rock. Wunderlich has recorded a temperature of 110° in one or two cases, but so great an elevation must be very rare in this disease, and is of course prognostic of an unfavourable ending.

The external temperature undergoes similar but greater fluctuations, rising above and falling below the normal standard several times in the course of the same day. Similar fluctuations occur in sporadic meningitis, but they are much less pronounced. The more grave the case in those not comatose, the greater these variations. The following is a common example: the patient was two years old, and the case was one of considerable severity. The observations were made at four consecutive visits during the first week. The internal temperature varied from 101½° to 104½° as the extremes, while that of the fingers and hand at the first examination was 90½°, at the second 90°, at the third 103°, and at the fourth 83°. Thus the temperature of the extremities at the first and second examinations was about 8° below that of health, while at the third examination it had risen 13°, so as nearly to equal the internal temperature, and at the fourth examination it had again fallen 20°, or 15½° below the normal standard. The patient recovered. These sudden and great variations in the pulse and temperature have considerable diagnostic value in obscure and doubtful cases.

Respiratory System.—The symptoms which are referrible to the respiratory apparatus are for the most part quite subordinate except when an inflammatory complication occurs. The respiration in uncomplicated cases is quiet and easy, and a cough if present is usually slight and accidental. Intermittent, sighing, or irregular respiration is less frequent in cerebro-spinal fever than in sporadic meningitis, but it does occur. In ordinary cases the respiration is somewhat accelerated, but without any marked disturbance in its rhythm. In 31 observations in children who had the disease without complication, I found the average respirations 42 per minute, while the average pulse was 137. It is seen therefore that the respiration as compared with the pulse was proportionately more frequent than in health. This appears to be due to the fact, that certain muscles, which are concerned in respiration, as the abdominal and perhaps others, are embarrassed in their movements by the tonic contractions. In cases of pulmonary congestion, œdema, or inflammation, of course, the symptoms of this affection are superadded to those of the primary disease.

Cutaneous Surface.—The features may be pallid, of normal appearance, or flushed in the first days of the disease; but in advanced cases they are pallied, as is the skin generally. A circumscribed patch of deep congestion often appears, as in sporadic meningitis, upon some parts of them, as the cheek, forehead, and ear, and after a short time disappears. Friction for a moment upon any part of the surface, when the temperature is not reduced, produces the same appearance, a fact to which Trousseau and others have called attention as regards sporadic meningitis.

The following are the abnormal appearances of the skin which I have most frequently observed: 1st, Papilliform elevations, due to contraction of he muscular fibres of the corium, namely the so-called goose-skin. This

is not uncommon in the first weeks. 2d, A dusky mottling, also common in the first and second weeks, in grave cases, and most marked where the temperature is reduced. 3d, Numerous minute red points over a large part of the surface, bluish spots a few lines in diameter due to extravasation of blood under the cuticle, resembling bruises in appearance, and large patches of the same color, an inch or more in diameter, less common than the others, and usually not more than two or three upon a patient. These last I believe from certain observations are sometimes the result of bruises, which the patients receive during the spells of restlessness. 4th, Herpes. This is common. It sometimes occurs as early as the second or third day, but in other instances not till towards the close of the first week or in the second. The number of herpetic eruptions varies from six or eight to a dozen or more. This affection evidently has a neuropathic origin, the vesicles occurring chiefly on those parts of the surface which are supplied by branches of the fifth pair of nerves. Its most common seat is upon the lips, but I have occasionally observed it upon the mucous membrane of the nasal and buccal surfaces, upon the cheek, around the ears and upon the scalp.

During the first days the skin is apt to be dry. Afterwards perspirations are not unusual, and free perspirations sometimes occur especially about the head, face, and neck. The quantity of urine excreted is normal, or it may be in excess of the normal amount. It occasionally contains a moderate amount of albumen, and in exceptional instances cylindrical casts and blood corpuscles. A deposit of urates in the urine is not infrequent, but this so often occurs in inflammatory and febrile diseases, that it is of little moment.

Arthritic inflammation, apparently of a rheumatic character, has been occasionally observed in most epidemics. It is commonly slight, producing merely an œdematous appearance around one or more joints. Thus, in one case, which came under my notice, and which was subsequently fatal, the parents, who were poor, and were therefore without medical advice till the case was somewhat advanced, had already diagnosticated rheumatism on account of puffiness, which they had noticed around one of the wrists.

The organs of the special senses are more or less involved in most cases, and the eye and ear are not infrequently the seat of serious lesions. Taste and smell are rarely affected so far as known, but it is possible that they may sometimes be perverted or even temporarily lost during the time of greatest stupor. In one case at least the smell in one nostril was entirely lost. The affections of the eye and ear are the most important and interesting of those of the special senses. Strabismus is common. It may occur at any period of the fever, continuing a few hours or several days, and it may appear and disappear several times before convalescence is established. Occasionally it continues several weeks, but with few exceptions the parallelism of the eyes is finally restored. In a boy of five

years, whom I last saw three months after convalescence, there was still convergent strabismus of the right eye and double vision.

Changes in the pupils are among the first and most noticeable of the initial symptons, as I have already stated in describing the mode of commencement. These are dilation, less frequently contraction, oscillation, inequality of size, feeble response to light, etc. Most patients present one or more of these abnormalities of the pupils, and they continue during the first and second weeks, and gradully abate, as the condition of the patient improves. Inflammatory hyperæmia of the conjunctiva often occurs. It commences early, and now and then, the conjunctivitis is so intense, that considerable tumefaction of the lids occurs, with a free muco-purulent secretion. The false diagnosis has indeed been made of purulent opthalmia, in cases in which this affection of the lids was early and severe. But such intense inflammation is quite exceptional. More frequently, there is an uniform diffused redness of the conjunctiva, not so dusky as in typhus, and the injected vessels can not be so readily distinguished as in that disease.

In certain cases, almost the whole eye (all, indeed, of the important constituents) becomes inflamed; the media grow cloudy, the iris discolored, and the pupils uneven, and filled up with fibrinous exudation. The deep structures of the eye cannot, therefore, be readily explored by the ophthalmoscope, but they are observed to be adherent to each other, and covered by inflammatory exudation. They present a dusky red, or even a dark colour, when the inflammation is recent. Exceptionally, the cornea ulcerates, and the eye bursts, with a loss of more or less of the liquids, and shrinking of the eye. But ordinarily no ulceration occurs, and as the patient convalesces, the œdema of the lids, hyperæmia of the conjunctiva, the cloudiness of the cornea, and of the humours, gradually abate, and the exudation in the pupils is absorbed. The iris bulges forward, and the deep tissues of the eye, viewed through the vitreous humour, which before had a dusky red color from hyperæmia, now present a dull white color. The lens itself, at first transparent, after a while becomes cataractous. Sight is lost, totally and forever. This form of ophthalmia is sometimes rapidly developed, as in the following example:—

On July 5th, 1873, I was called to a boy, five years of age, who had reached the tenth day of cerebro-spinal fever without apparently any affection of the eyes, as both presented the normal appearence. On the following day the left eye was red and swollen from the inflammation and chemosis, so that the lids could not be closed, and the media were cloudy. Death occurred on the same day.

If the patient live, the volume of the eye diminishes, as the inflammation abates to less than the normal size, even when there has been no rupture, and divergent strabismus is apt to occur. Prof. Knapp, whose description of the eye I have for the most part followed, says: "The nature of the eye affection is a purulent choroiditis, probably metastatic." Fortunately

so general and destructive an inflammation of the eye, as has been described above, is comparatively rare. On the other hand, conjunctivitis of greater or less severity, and hyperæmia of the optic disk, consequent on the brain disease, are not unusual, but they subside, leaving the function of the organ unimpaired.

Inflammation of the middle ear of a mild grade, and subsiding without impairment of hearing, is common. The membrana tympani, during its continuance, presents a dull yellowish, and in places a reddish, hue. Occasionally a more severe otitis media occurs, ending in suppuration, perforation of the membrana tympani, and otorrhœa, which ceases after a variable time. But otitis media is not the most severe affection of the sense of hearing. Certain patients lose their hearing entirely and never regain it, and that too, with little otalgia, otorrhœa, or other local symptoms, by which so grave a result can be prognosticated. This loss of hearing does not occur at the same period of the disease in all cases. Some of those who become deaf are able to hear as they emerge from the stupor of the disease, but lose this function during convalescence, while the majority are observed to be deaf as soon as the stupor abates and full consciousness returns.

Two important facts have been observed in reference to the loss of hearing in these patients, namely, it is bilateral and complete. When first observed it is sometimes complete, but in other instances it is partial, and when partial it gradually increases till after some days or weeks, when it becomes complete. I have the records of ten cases of this loss of hearing, or about one in ten of the total number of cases, which have either come under my observation, or have been reported to me by physicians in whose practice they occurred. One was a young lady and the others children under the age of ten years. Prof. Knapp has examined thirty-one cases. "In all," says he, "the deafness was bilateral, and with two exceptions, of faint perception of sound, complete. Among the twenty-nine cases of total deafness there was only one who seemed to give some evidence of hearing afterwards."

One theory attributes the loss of hearing to inflammatory lesions, either at the centre of audition within the brain, or in the course of the auditory nerves before they enter the auditory foramina. Thus Stillé says: "This symptom appears to depend chiefly upon the pressure of the plastic exudation in which the nerves are imbedded." The other theory attributes the loss of hearing to inflammatory disease of the ear, and especially of the labyrinth. Dr. Sanderson, who is an advocate of this latter theory, remarks as follows: "As regards the nature of the affection, there appears to be good reason for believing that, like the blindness observed under similar circumstances, and sometimes in the same cases, it is dependent on inflammatory changes in the organ of hearing itself. Dr. Klebs was kind enough to show me in the pathological museum of the Charité, at Berlin,

a preparation of the internal ear of a soldier who had died of epidemic meningitis complicated with deafness, in which fibrinous adhesions existed between the bones of the internal ear and the walls of the vestibule. Dr. Klebs stated that in the recent state the mucous lining of the vestibule was detached." In the case of a young woman who was deaf from the commencement and died on the eighth day, "both tympana were natural, but in the left membrana tympani was found a dense white thickening as large as a pin's head. On the same side the lining membrane of the semi-circular canals was distinctly thickened and loosened, and in the anterior canal there were semi-fluid purulent masses." Professor Knapp also states: "The nature of the ear disease is, in all probability, a purulent inflammation of the labyrinth." According to him no disease of the middle ear could cause such complete deafness, and, as evidence that the deafness is not due to central disease, Dr. Gruening obtained by electrization the normal reaction of the auditory nerve within the cranium. Moreover, if the lesion which destroys hearing is within the cranium, why is not the function of the other cranial nerves also abolished. Drs. Keller and Lucae have also, in three post-mortem examinations, found evidences of disease of the labyrinth.

An argument in support of the former of these theories is the fact, that the lesion which produces the deafness is not ordinarily attended by any marked subjective symptoms referable to the ear as otalgia, etc. Again, the fact that the deafness is always bilateral and simultaneous in the two ears, comports better with the doctrine of a central lesion than with that which locates the lesion in the ear. But the true theory can only be positively established by dissections, and as we have seen, several post-mortem examinations have revealed inflammatory disease of the labyrinth in those who have died having this form of deafness, while in no case, so far as I am aware, has the ear been found free from inflammatory lesions. Therefore, the theory which ascribes the deafness to disease of the ear is much better established than the other, and in the present state of our knowledge we must accept it. Moreover, most of the aurists of this city, who have had excellent opportunities to examine these cases, believe in this theory.

Nature.—If we examine the literature of cerebro-spinal fever, we will find that three theories relating to its nature have been advocated; one that it is a local disease, occurring epidemically; the second, that it is akin to typhus fever, or is a form of it; and the third, that it is a disease *sui generis*.

The first theory, that it is an epidemic local disease, once had many adherents, but it is now nearly discarded. Job Wilson, in 1815, considered it a form of influenza, and he could discern no utility in drawing a distinction between spotted fever and influenza. We, in this day, can see no resemblance between the two, except that they are both pandemics.

A more plausible view is, that it is merely an epidemic inflammation of the cerebral and spinal meninges. Even Niemeyer says that it presents no symptoms except such as are referable to the local affection. But a moment's thought will show us that cerebro-spinal fever differs as widely from simple meningitis, as scarlet fever with its pharyngitis differs from idiopathic pharyngitis. Cerebro-spinal fever begins abruptly, usually in those with previous good health; and its initial symptoms, we have seen, are severe; while sporadic meningitis ordinarily occurs in those of feeble or failing health, with an insidious approach, and with gradually increasing symptoms. And though the two diseases have many symptoms in common, they differ in others. Scantiness of the urine, dryness of the skin, and retraction of the abdomen, are observed in sporadic meningitis, while a normal or increased amount of urine, a normal or even rounded fulness of the abdomen, and often, also, perspiration, are symptoms of cerebro-spinal fever. The two diseases differ also strikingly as regards the periods of greatest danger and the prognosis; but the conclusive proof that the disease of which we are treating is not a local affection, but constitutional, with local manifestations, is found in the fact of a constant and early blood change, which in all severe cases is manifested by the appearance of the skin, and in other ways.

Cerebro-spinal fever differs widely in many particulars from typhus, although it is probable that it was confounded with it previously to the present century, and many even now consider it a form of that disease. Their theory is, that from some unknown cause or influence the poison of the constitutional disease acquires for the time an affinity for the great nervous centres, producing their congestion and inflammation, just as that of scarlet fever causes a pharyngitis, and if we could detach from it these local manifestations, we would have a malady which differs but little, if at all, in its clinical history and nature, from typhus.

The following are some of the differences which, in my opinion, not only establish the non-identity of these two fevers, but show that there is no close relationship between them. The causes of typhus are determined. Crowding, personal uncleanliness, and imperfect ventilation are sufficient to produce it in any season or climate. Such is not the case with cerebro-spinal fever. The most that can be said of the agency of these and similar anti-hygienic conditions in causing this fever is, as we have already stated, that they produce deterioration in the tone of the system, so that it is less capable of resisting the prevailing epidemic influence. The cause of cerebro-spinal fever occurs independently of the usual conditions of life and is present or operative only at long intervals; else the epidemic would not be so rare. Typhus is highly contagious; cerebro-spinal fever is not contagious, or is feebly so. Typhus is rare under the age of ten years, and is most frequent in youth and manhood, while the reverse is true of cerebro-spinal fever. Typhus commences with mild or

moderately severe symptoms, which increase in severity day by day, and the period of greatest danger is therefore at an advanced stage of the disease. Contrast this with the violence of the initial symptoms of cerebro-spinal fever, and the fact that the first and second days are most perilous. Moreover, typhus does not seem to be more prevalent during epidemics of cerebro-spinal fever, than at other times.

If we pass over those many symptoms due to lesions of the cerebro-spinal axis, which are present in cerebro-spinal fever, but are absent in typhus fever, there are other points of dissimilarity which cannot be satisfactorily explained, except on the supposition of an essential difference in the two diseases. The sordes on the teeth and gums, dry and brown fur upon the tongue, peculiar mouse-like odour, and more definite duration of typhus, are points of contrast with cerebro-spinal fever. Moreover, and as, in my mind, very conclusive evidence of the non-identity of typhus and cerebro-spinal fever, that common lesion of the former, namely, enlargement and softening of the spleen, is seldom present in the latter. The spleen has usually been found normal or moderately congested in most post-mortem examinations of cerebro-spinal fever.

Where, therefore, should cerebro-spinal fever be placed in the catalogue of diseases? It resembles scarlet fever in the suddenness and violence of its onset; sporadic meningitis on the one hand, and typhus on the other, as we have seen, in many of its symptoms; influenza and cholera, in the infrequency of its visitations, and its pandemic nature. But the particulars in which it differs from these diseases are more numerous and important than those in which it resembles them. Like a rare object in nature, which naturalists are not able to classify with others on account of dissimilarities, though it has its resemblances to more than one, cerebro-spinal fever appears to stand alone, as a peculiar constitutional disease, having a peculiar but obscure cause, and a dangerous manifestation or expression located in the cerebro-spinal system.

Prognosis.—Cerebro-spinal fever is justly one of the most dreaded of the epidemic diseases, on account of the great mortality which attends it, and the fact that those who survive are often left with some incurable ailment. The following are the statistics of fifty-two cases, most of which occurred in my own practice, and the rest I visited in consultation; twenty-six were cured and twenty-six died. Sixteen of the twenty-six who died were profoundly and hopelessly comatose within the first seven days, most of them dying within that time, and some even on the first and second days, while others lingered into the second week and died without any sign of returning consciousness. These statistics therefore show, and the same is true of the statistics of other observers, that the first week is the time of greatest danger, and if no fatal symptoms are developed during this week recovery is probable. Only three deaths occurred after the twenty-first day, one from purpura hemorrhagica, the hemorrhages taking

place from the mucous surfaces, and the other two after a sickness of more than two months, in a state of extreme emaciation and prostration. In these last cases muscular tremors and convulsions preceded death. The ten who subsequently died, but did not become comatose during the first week, were nevertheless seriously sick from the first day, but there was hope and some expectation of a different issue till near death.

There is probably no disease which falsifies the predictions of the physician more frequently than this. This is due partly to the severity of the cerebral symptoms in the commencement, which, did they occur in the common forms of meningitis, with which he is more familiar, would justify an unfavourable prognosis, and partly to the remissions and exacerbations, the occurrence alternately of symptoms of apparent convalescence and recrudescense, or relapse, which characterizes the course of this disease. Grave initial symptoms, which might seem to have a fatal augury, are often followed by such a remission, that all danger seems past, and in a few hours later perhaps the symptoms are nearly or quite as grave as at first.

Under the age of five years, and over that of thirty, the prognosis is less favorable than between these ages. An abrupt and violent commencement, profound stupor, convulsions, active delirium, and great elevation of temperature are symptoms which should excite solicitude, and render the prognosis guarded. If the temperature remain above 105° death is probable, even with moderate stupor. Numerous and large petechial eruptions show a profoundly altered state of the blood, and are therefore a bad prognostic, and so is continued albuminuria, as it indicates great congestion of the kidneys, associated probably with other internal congestions. In one case, a boy, which I had an opportunity of examining nearly a year after the attack, the kidneys were still affected. There was anasarca of the face and extremities with albuminuria. The renal congestion had apparently degenerated into a chronic Bright's disease. The result of the case I have not ascertained. Profound stupor, though a dangerous symptom, is not necessarily fatal as long as the patient can be aroused to partial consciousness, and the pupils are responsive to light. So long as it does not pass into actual coma, it is less dangerous than active or maniacal delirium, which is apt to eventuate in this coma.

A mild commencement, with general mildness of symptoms, as the ability to comprehend and answer questions, moderate pain and muscular rigidity, some appetite, moderate emaciation, little vomiting, etc., justifies a favourable prognosis, but even in such cases it should be guarded till convalescence is fully established.

Death in the first stages of cerebro-spinal fever appears to occur ordinarily from coma, but we will see from the lesions that congestion of the posterior portions of the lungs is frequent, and Sanderson says :—

"In all the fatal cases which came under my notice, the most prominent symptoms, which preceded death, were those which indicate impairment and perversion of the respiratory functions. As the breathing became more hurried and difficult, the general depression became more intense, the pulse became weaker and quicker, and the temperature of the skin more elevated."

He cites the case of a child, who died in that way but was at the same time comatose. In more protracted cases in which there is softening of portions of the cerebro-spinal axis, or fibrino-purulent collections around it, which are not absorbed, death may occur either from convulsions and coma or from exhaustion. We have already alluded to one case in which purpura hemorrhagica was developed and the child was exhausted by the hemorrhages.

Those who fully recover often exhibit symptoms usually of a nervous character, as irritability of disposition, headaches, etc., for months after convalescence is established.

Diagnosis.—Cerebro-spinal fever, on account of the nature and severity of its symptoms and the suddenness of its onset, may be mistaken for scarlatina, and *vice versâ*. In one instance, to my knowledge, this mistake was made. High febrile movement, vomiting, convulsions, and stupor are common in the commencement of scarlet fever, and we have seen that the same symptoms ordinarily usher in the severer forms of cerebro-spinal fever. It will aid in diagnosis to ascertain whether there is redness of the fauces, for this is present in the commencement of scarlet fever, and in a few hours later the characteristic efflorescence appears upon the skin.

The diagnosis of cerebro-spinal fever from the common forms of meningitis is ordinarily not difficult, for while in the former there is the maximum intensity of symptoms on the first day, in the latter there is a gradual and progressive increase of symptoms from a comparatively mild commencement. Moreover cases of ordinary or sporadic meningitis occurring at the age when cerebro-spinal fever is most frequent, are commonly secondary, being due to tubercles, caries of the petrous portion of the temporal bone, or other lesion, and there are therefore in these cases preceding and accompanying symptoms, which are directly referable to the primary disease. We have seen how different the case is with cerebro-spinal fever, which in most patients begins abruptly in a state of previous good health. Again in cerebro-spinal fever, after the second or third day, hyperæsthesia, retraction of the head, and other characteristic symptoms occur, which are either not present, or are much less pronounced, in ordinary meningitis. The symptoms of hysteria sometimes bear a close resemblance to the delirium observed in certain cases of cerebro-spinal fever. But the thermometer enables us to make the diagnosis, for in hysteria there is no febrile movement. In our remarks on the nature of cerebro-spinal fever we have sufficiently described the differences between this disease and typhus.

Anatomical Characters.—The following notes of 76 fatal cases,

arranged in four series, according to their duration, show the lesions observed:—

SERIES I.—*Cases fatal within three days.*

CASE 1. Male, æt. 18 years; duration three days. Brain generally congested; "puncta vasculosa" numerous; increase of liquid in third, fourth, and lateral ventricles; liquid turbid, and containing fibrin; meninges hyperæmic; fluid in meshes of pia mater; fibrinous exudation along optic nerves and base of cerebellum; increased quantity of spinal fluid; some fibrinous exudation on anterior, but more on posterior, surface of cord, especially in dorsal and lumbar regions. Bellevue Hospital Records, March 20, 1872.

CASE 2. Male, adult; duration thirty hours. Fibrinous exudation under arachnoid, most abundant over posterior lobes of cerebrum, at base of the brain, and on medulla oblongata; dura mater (meninges?) congested; ℥iij or ℥iv of turbid serum in pericardium. American Medical Times, April 30, 1864, Wm. Frothingham, M.D.

CASE 3. Æt. 16 months; duration fourteen hours. ℥j of serum in ventricles; general turgescence of vessels of meninges with dark blood; pleuræ and the peritoneum covering stomach and liver injected; numerous star-like points of extravasated blood on external and internal surfaces of stomach, superior part of intestines, upon the diaphragm, and thoracic organs. Dr. Gallop, History of Spotted Fever in Vermont, 1811.

CASE 4. Æt. 12 years; duration twelve hours. Brain congested; slight increase of liquid in ventricles; meninges congested; lungs dark and congested. History of Spotted Fever in Vermont, 1811; communicated to Dr. Gallop by Dr. Bowen.

CASE 5. Male, æt. 30 years; duration three days. Numerous "puncta vasculosa" in brain; ventricles nearly empty, and their walls apparently healthy; choroid plexus not injected; all the meninges injected; a grayish-white exudation in nearly all the intergyral spaces, but most abundant near the longitudinal suture; pons Varolii, chiasm, upper end of medulla, and inferior surface of posterior lobes also covered with exudation; spinal dura mater hyperæmic, and its internal surface minutely injected; anterior aspect of cord nearly normal, except purulent-looking matter over cauda equina; firm exudation over entire posterior surface of cord below the upper dorsal region; cord itself apparently healthy; posterior portions of lungs infiltrated with bloody serum; a few soft, dark clots in right ventricle of heart; liver and spleen hyperæmic, and the latter soft. Burdon-Sanderson, Report on Cerebro-spinal Meningitis.

CASE 6. Male, æt. 10½ years; duration five hours. Turbid serum in ventricles; arachnoid over convex surface of brain cloudy and without lustre; thin purulent-appearing liquid in meshes of pia mater, greenish in places; turbid serum at base of brain; pia mater very vascular; arachnoid at base of brain healthy; spinal pia mater hyperæmic; blood everywhere fluid; right side of heart engorged, and lungs congested. Samuel Gordon, M.D., Dublin Quarterly Journal, 1866.

CASE 7. Male, æt. 15 years; duration one day. Turbid liquid in ventricles; choroid plexus injected; entire pia mater injected; discolored liquid in subarachnoid space similar to that in ventricles, not containing any appreciable quantity of pus or fibrin; spinal pia mater injected; blood fluid; lungs congested; right side of heart distended with blood. Ibid.

CASE 8. Female, æt. 21 years; duration three days. Brain congested and softened; meninges injected; effusion of serum underneath them; fibrinous exudation along longitudinal fissure; effusion of serum under meninges; blood dark and partially coagulated; serous effusion in pericardial and peritoneal sacs; a small amount of fibrin upon descending colon, ovaries, and uterus (died

six days after her confinement). W. H. H. Githens, M.D., American Journal of the Medical Sciences, July, 1867.

CASE 9. Male, adult; duration one day. Cranial sinuses distended with fluid blood; meninges injected at base of brain; shreds of fibrin about pons Varolii, and upper part of medulla oblongata; all the great vessels of the chest distended with blood; a large amount of fluid in pericardium; right cavities of heart distended with clots; liver and kidneys enlarged and the latter engorged. Dr. Haverty, Dublin Quarterly Journal, 1867.

CASE 10. Male, æt. 18 years; duration less than one day. Brain slightly congested but otherwise normal; exudation in ventricles containing apparently both fibrin and pus; exudation of fibrin and pus at base of brain and cerebellum; congestion and spots of apparent extravasation of blood in posterior portions of lungs; fibrinous coagula in both ventricles of the heart; spleen and liver enlarged and hyperæmic. Dr. J. B. Upham, Boston Medical and Surgical Journal, vol. lxviii.

CASE 11. Male, æt. 32 years; duration two days. Brain substance normal; fibrino-purulent exudation in ventricles thicker than that over exterior of brain; engorgement of meningeal vessels; a thin exudation of fibrin and pus over superior surface of brain and at its base, between the lobes of the cerebellum, about the origin of the nerves. and upon the surface of the medulla oblongata; lungs moderately congested, especially posteriorly; pericardium injected and fibrinous exudation upon its surface; dark fluid blood in ventricles of heart; spleen enlarged and slightly softened; one or two of Peyer's patches slightly raised; other organs normal. Ibid.

CASE 12. Male, æt. 21 years; duration three days. Ventricles distended by an opaque liquid having a deposit apparently purulent; a fibrino-purulent exudation over the base of the cerebellum and around the origin of the nerves of sense; ℥iij of fluid in pericardium; right lung congested; left lung small from former disease; liver of normal appearance but inter-lobular veins congested; Peyer's patches slightly enlarged and prominent; spleen and other organs normal. Ibid.

CASE 13. Male, æt. 20 years; duration two days. Fibrin in the posterior part of lateral ventricles, and also a fungoid growth at floor of each ventricle; brain covered with a layer of fibrin permeating the pia mater in every part; exudation about the base of cerebellum, medulla oblongata and the origin of the nerves of special sense; spinal cord apparently healthy, examined to the extent of three inches; lungs congested and liver also in less degree; cavities of heart contained firm coagula; spleen large and softened. Ibid.

CASE 14. Male; duration three days. Vessels of pia mater engorged; fibrin in the intergyral spaces of cerebral hemispheres; also over the pons Varolii and medulla oblongata; spinal pia mater injected and exudation near the lower dorsal vertebræ. Ibid.

CASE 15. Male, æt. 18 years; duration thirty-six hours. Brain congested; ℥j of yellow fluid in ventricles, choroid plexus injected; meninges highly injected; adhesion of dura mater to skull along longitudinal sinus; evidences of inflammation over entire cord; turbid serum in lower part of spinal canal. Ibid.

CASE 16. Male, æt. 40 years; duration five and a half hours. Brain congested; ℥j of serum in ventricles; sinuses and meningeal vessels engorged with fluid blood; ℥iv of fluid blood escaped when the calvarium was removed; spinal cord apparently healthy; lungs congested; ℥viij of serum in pleural cavities; ℥ij of fluid in pericardium; tricuspid valve thickened; urine albuminous and kidneys congested; other organs normal; blood dark and without coagulation. John A. Lidell, Treatise on Apoplexy, page 331.

CASE 17. Male, æt. 28 years; duration twenty-four hours. Vessels of cerebrum, cerebellum, pons Varolii and medulla oblongata congested; moderate

amount of serum in ventricles; at least ℥vj of serum escaped from cranial cavity; a moderate amount of limpid serum over vertex and under arachnoid; arachnoid somewhat opaque; spinal arachnoid opaque and pearl colored; the theca vertebralis distended with serum, which contained a few fibrinous flocculi; acute hyperæmia of subarachnoid vessels; substance of cord normal; both lungs congested, and extravasated blood in right middle lobe; kidneys greatly congested and of a dark red color; amber-colored urine loaded with albumen in the bladder; blood more fluid than normal. Ibid.

CASE 18. Male, æt. 17 years; duration thirty-six hours. Brain apparently normal, convolutions flattened; no effusion in ventricles; arachnoid dry; pia mater opaque and infiltrated with pus; spinal like the cerebral pia mater infiltrated with pus; substance of cord apparently normal; spleen somewhat enlarged. Dr. Ellis, Boston Medical and Surgical Journal, June 9, 1864.

CASE 19. Male, æt. 7 years; duration eleven hours. Bloody serum in ventricles; a layer of extravasated blood over brain, extending to the base. Dr. Sewall, New York Medical Times, July 1, 1872.

CASE 20. Male, æt. 11 years; duration eighteen hours. Brain substance greatly congested but its consistence normal; ventricles nearly dry; cranial sinuses and meningeal vessels distended with blood; no purulent or fibrinous exudation observed in any part; spots of extravasation in mucous membrane of stomach, also under peritoneal covering of stomach and intestines; blood everywhere dark and fluid. Ibid.

CASE 21. Æt. 15 months; duration nine hours. Ventricles normal; cerebral meninges injected; lungs congested; unusual amount of serum in pericardium; blood apparently normal. Ibid.

CASE 22. Female, æt. 4½ years; duration twenty-three hours. Brain somewhat softer than normal; ventricles empty; sinuses, meninges, and superficial vessels of brain injected; turbid serum at base of brain; blood everywhere fluid; petechial spots on peritoneum; liver congested, but other organs of the trunk normal; Peyer's patches prominent. Ibid.

CASE 23. Female, æt. 14 years; duration two days. Increase of fluid in ventricles; cerebral meninges injected; fibrin and pus in meshes of pia mater; purulent liquid escaped from the cranial cavity; spinal meninges congested but more over anterior than posterior aspect of the cord; pus and fibrin lying over the entire surface of the cord; right lung engorged; kidneys congested; spleen normal. Charity Hospital, April 9, 1872.

CASE 24. Male, æt. 14 years; duration three days. Vessels of brain engorged with blood and brain substance much softened (autopsy seven hours after death); cerebral meningeal vessels filled with dark blood and pus along the course of the vessels; great extravasation of blood outside of spinal dura mater; congestion of lungs and hypostatic pneumonia; a large amount of fluid in pericardium; stomach and intestines normal; spleen mottled; liver and kidneys congested. Ibid., April 20, 1872.

CASE 25. Male, æt. 11 years; duration three days. Convolutions flattened; brain substance of nearly normal color; lower part of middle lobes of both hemispheres, a considerable part of corpus callosum, and the right corpus striatum softened; ℥ij to ℥iij of transparent serum in ventricles; surface of ventricles of normal color; membranes covering medulla oblongata and cerebellum were thickened and opaque, and along the base of the brain were very vascular; considerable blood flowed from the vessels of the meninges, and there was some attachment of them to the convolutions; a considerable quantity of fluid blood escaped from the interior of the spinal canal which seemed flooded and engorged; spinal meninges thickened and highly vascular; appearance of cord normal, unless a little softened; ℥ij of serum in pericardium; heart and lungs healthy; liver and kidneys congested; spleen large but not apparently congested, containing but little blood; spots of extravasated blood in walls of intestines. B. J. Hicks, M.D., N. O. Medical and Surgical Journal, July, 1847.

CASE 26. Male, æt. 3 years; duration sixty-one hours. Brain and medulla oblongata hyperæmic but of normal consistence; not more than ʒj of serum in ventricles; cerebral dura mater injected; arachnoid intensely injected and dry; an abundant exudation of recent fibrin in meshes of pia mater having a gelatinous consistence, which was most abundant along the vessels of vertex, and along the longitudinal fissures and fissures of Sylvius; a slight deposit also over the optic commissure. C. W. Packard, M.D., New York Medical Record, April 15, 1872.

CASE 27. Male, æt. 24 years; duration two days. Serous effusions in pons Varolii and medulla oblongata; dura mater congested and whole surface of brain bathed in bloody serum containing jelly-like particles of fibrin. John Dwyer, Ibid., March 15, 1872.

CASE 28. Male, adult; duration one day. Brain healthy and without congestion; cerebral dura mater healthy; arachnoid slightly thickened; increased quantity of fluid at base of brain; considerable blood-stained fluid under spinal meninges; cord healthy and without congestion; dark fluid blood in left cavities of heart; lungs congested; spleen and other abdominal organs healthy. Dr. Haverty, Dublin Quarterly Journal, 1867.

CASE 29. Male, æt. 31 years; duration 30 hours. Softening of superior portion of left cerebral hemisphere; entire brain less firm than natural (autopsy in January, fourteen hours after death); cerebral meninges hyperæmic; lungs engorged with blood and frothy serum; heart flabby, and a large amount of dark fluid blood in its right cavities; spleen normal; kidneys enlarged; liver twice its normal size and weight, pale and friable. J. B. Upham, M.D., Boston Journal, April 16, 1863.

SERIES II.—*Duration from* 3 *to* 21 *days.*

CASE 1. Male, æt. 43 years; duration probably twelve to fourteen days. Entire brain hyperæmic; sero-purulent fluid in ventricles; exudation of meningitis over internal surface of each hemisphere; spinal membranes somewhat opaque, with considerable fluid over surface of cord; cord congested in dorsal region; spleen normal, and nothing unusual in other organs. Bellevue Hospital, February 22, 1872.

CASE 2. Male, æt. 23 years; duration eighteen days. Brain congested; turbid serum in the meshes of pia mater; slight thickening of membranes in course of meningeal artery and at base of brain; pus in right pleural cavity; pneumonia in upper part of right lower lobe; gray hepatization in upper part of left upper lobe, and red hepatization in left lower lobe; fibrinous exudation over inflamed parts; kidneys congested. Ibid., March 26, 1872.

CASE 3. Male, æt. 24 years; duration five days. Fibrin and pus in both posterior cornua, penetrating the walls of the ventricles; a thick layer of pus and fibrin over pons Varolii and medulla oblongata; arachnoid upon superior surface of brain opaque, and fluid underneath; entire lower half of cord covered with fibrin and pus, most abundant on anterior surface: normal as far as observed. Bellevue Hospital, March 3, 1872.

CASE 4. Male, æt. 30 years; duration six days. Brain greatly congested; turbid serum and half drachm of pus in ventricles; cerebral meninges congested; entire spinal meninges and cord congested; a considerable amount of pus over entire extent of cord; lungs and kidneys congested; spleen and liver normal. Ibid.

CASE 5. Female, æt. 30 years; duration sixteen to eighteen days. Brain congested, exhibiting numerous "puncta vasculosa;" ventricle contained turbid serum, with flocculi of lymph; increase of liquid at base of brain; meninges greatly congested; increased vascularity of posterior columns; exudation in meshes of pia mater; a few adhesions between arachnoidal surfaces; blood fluid, and containing gas bubbles; walls of heart flabby; Ojss of bloody pus in left pleural cavity, and left lung covered with shreds of bloody fibrin; hypo-

static congestion and œdema in depending parts of right lung; fatty degeneration of epithelia of tubuli uriniferi. Ibid., May 4, 1872.

CASE 6. Male, æt. 35 years; duration four days. Considerable pus in ventricles; purulent exudation over entire surface of cerebrum and cerebellum; pus over posterior columns the entire length of cord, and in places over anterior columns. Ibid., May 30, 1872.

CASE 7. Male, æt. 24 years; duration twenty days. Softening of fornix, corpus callosum, and septum lucidum; a large quantity of serum containing flocculi of fibrin escaped from the ventricles; fibrinous exudation over optic commissure, and posteriorly to it, over surface of brain and upon under surface of cerebellum; intense congestion of sinuses and vessels of the meninges. Ibid., May 29, 1872.

CASE 8. Female, æt. 3 years; duration sixteen days. Convolutions flattened; brain substance everywhere pale, soft, and anæmic; walls of lateral and third ventricles softened; a large quantity of turbid liquid in ventricles containing purulent flocculi; yellowish exudation in a few intergyral spaces upon summit and sides of brain; fibrinous exudation over chiasm, and backward to under surface of medulla and over under surface of cerebellum; soft and dark semi-fluid clots in sinuses; meninges generally congested; an extended exudation in the meninges over posterior surface of cord, separated from the cord by purulent liquid; detached patches of exudation over anterior surface of cord; diploë of calvarium congested; soft and dark clots in both cardiac ventricles. Burdon-Sanderson, Report on Cerebro-spinal Meningitis.

CASE 9. Male, æt. 42 years; duration twelve days. Brain very moist and hyperæmic; ventricles not distended, but pus in posterior cornua; choroid plexus infiltrated with pus, which could be traced to surface of brain; great hyperæmia of cerebral dura mater; arachnoid everywhere opaque; pia mater of cerebellum injected; semi-transparent exudation in intergyral spaces of a gelatinous consistence; no exudation at base of brain, nor in fissures of Sylvius, nor upon medulla oblongata; spinal meninges everywhere hyperæmic; arachnoid covering the posterior aspect of the cord opaque, and its internal surface lined by exudation; under this was a layer of blood one-eighth of an inch thick over whole length of cord below the bronchial swelling; anterior aspect of cord healthy; spleen small, but soft and hyperæmic; liver and kidneys congested; lungs posteriorly at the base soft, hyperæmic, and of greater specific gravity than water. Ibid.

CASE 10. Male, æt. 19 years; duration five days. Numerous blood points, but no softening of brain; arborescent injection on surface of convolutions; ℥i of turbid sanguinolent liquid in lateral ventricles; cerebral meninges very hyperæmic; a thick pale yellow exudation in intergyral spaces of hemispheres, covering in some places the convolutions; it was most abundant on the right side, along the veins which converge to the fissures of Sylvius, where it was $\frac{1}{10}$ of an inch thick; it had the consistence of the brain, and was imbedded in the meshes of the pia mater; a similar exudation on surface of right side of cerebellum; vascularity, but less exudation at base of brain; pus flowed from the spinal canal; no exudation on anterior surface of cord, but posterior covered with concrete pus; spleen soft and congested, but of natural size. Ibid.

CASE 11. Female, æt. 20 years; duration fourteen days. A considerable quantity of serum under the cerebral meninges; exudation upon the optic commissure and pons Varolii, and here and there in other points; purulent liquid over the posterior aspect of the cord, especially in the cervical and lumbar regions; its anterior aspect healthy. Ibid.

CASE 12. Female, æt. 15 years; duration six days. Ventricles contained turbid serum; cerebral pia mater engorged, and arachnoid opaque; purulent matter in places over the brain; entire pia mater of spine hyperæmic, and covered with a thin coating of purulent matter; purulent liquid flowed from the spinal canal; blood in all the cavities very fluid and dark; lungs much engorged. Samuel Gordon, M.D., Dub. Quart. Jour., 1866.

CASE 13. Male, adult; duration fifteen days. Brain substance but little changed; ventricles contained turbid fluid; intense congestion of cerebral meninges, with opaque patches upon arachnoid; fibrin with pus at base of brain, over pons Varolii and upper part of medulla oblongata; fibrinous exudation also upon the dura mater near anterior extremity of longitudinal sinus; intense lividity in the cadaver about head, face, and trunk. Dr. Haverty, Dub. Quart. Jour., 1867.

CASE 14. Female, æt. 23 years; duration six days. Arachnoid at base of brain thickened and inflamed; pia mater much congested; fibrin along the course of the great vessels and in the subarachnoid space; spinal meninges and cord healthy. Ibid.

CASE 15. Female, æt. 15 years; duration fourteen days. ℥iv of serum escaped from the ventricles and cavity of arachnoid; fibrin over surface of pons Varolii and medulla oblongata; spinal meninges greatly injected. Mr. Darby, Dub. Quart. Jour., 1867.

CASE 16. Female, æt. 38 years; duration eleven days. Base of brain soft and lacerable; surface of right corpus striatum softened; a large quantity of sero-purulent fluid in ventricles: fibrinous exudation over base of brain from fissures of Sylvius to cerebellum; the spinal canal contained a large quantity of sero-purulent fluid, with fibrinous flocculi; spleen turgid, but not softened; kidneys very congested; liver of the color of red lead, and converted into a pulp by scraping; intestines healthy, except injection of the lower part of ileum. Drs. F. J. Brown and T. P. Atkinson, in Simon's Report relating to Public Health, 1866.

CASE 17. Male, æt. 21 years; duration three to four days. Fibrin in posterior cornu of left ventricle; fibrinous exudation over surface of cerebrum, along longitudinal fissure, in sulci between hemispheres, over chiasm of optic nerves, along the origin of the nerves generally, and upon the cerebellum above and below; pia mater appears normal; clots of fibrin in cavities of heart; valves of heart normal; abdominal organs normal. J. B. Upham, M.D., Bost. Med. and Surg. Jour., April 16, 1863.

CASE 18. Male, æt. 23 years; duration three weeks. Brain firm and of normal consistence; ℥j of fluid in left lateral ventricle, containing flocculent masses; in posterior cornu ʒj of pus; similar fluid but in less quantity in right ventricle; deposit of fibrin in intergyral spaces over cerebral hemispheres; inferior aspect of medulla oblongata and cerebellum, it was in places one-sixth of an inch thick and firm; arachnoid cloudy; posterior portions of lungs slightly congested. Ibid.

CASE 19. Male, æt. 22 years; duration nine days. Ventricles contained sero-purulent liquid, with flakes of fibrin; cerebral dura mater healthy; engorgement of vessels on upper surface of brain; fibrino-purulent exudation along base of brain around the nerves of special sense, and upon medulla oblongata, extending into the depressions of cerebrum and cerebellum; hepatization of posterior part of left lung; heart normal; liver slightly congested; spleen and other abdominal organs normal; Peyer's patches normal. Ibid.

CASE 20. Male, æt. 18 years; duration thirteen days. Ventricles distended with fluid containing pus; cerebral meninges hyperæmic; over medulla oblongata and inferior aspect of cerebellum a deposit of fibrin from two-eighths to three-eighths of an inch thick; slight congestion of posterior portion of lungs; heart and abdominal organs healthy; solitary glands and Peyer's patches enlarged. Ibid.

CASE 21. Male, æt. 18 years; duration four and a half days. Effusion in ventricles; cerebral meninges congested; fibrinous exudation over upper surface of hemispheres of cerebrum and over cerebellum; organs of trunk apparently nearly normal. Ibid.

CASE 22. Male, æt. 23 years; duration four days. ℥j of serum in lateral ventricles; all the cerebral sinuses engorged with blood; pia mater injected;

fibrinous deposit over entire surface of cerebrum, cerebellum, and medulla oblongata; purulent serum in sheath of spinal cord; organs of trunk healthy. Ibid.

CASE 23. Male, æt. 19 years; duration one week. Effusion of serum with pus in ventricles; sinuses and pia mater distended with blood; the usual exudation of fibrin over cerebrum, cerebellum, medulla oblongata, and pons Varolii; fibrinous exudation over the cord, and yellowish fluid in the sheath. Ibid.

CASE 24. Male, æt. 18 years; duration eleven days. Gray and white cerebral substance congested and softened; also the medulla oblongata, pons Varolii, and cerebellum; ℥ss of sero-purulent fluid in lateral ventricles; all the cerebral meninges hyperæmic; ℥jss of serum in cavity of the arachnoid; fibrin and pus in places in the meshes of pia mater; a large amount of fibrin over pons Varolii, medulla oblongata, and as far forward as the pituitary body; spinal meninges highly injected in every part, and considerable sero-purulent liquid in spinal canal; no pus or fibrin over cervical portion of spinal cord, but considerable of both from the seventh cervical vertebra to the sacrum; both lungs congested, and mucous membrane of stomach dark coloured and softened. Ira Russell, M.D., Bost. Med. and Surg. Jour., May 19, 1864.

CASE 25. Æt. about 15 years; duration six days. Cerebrum, cerebellum, pons Varolii, and medulla oblongata congested and softened; ℥ss of sero-purulent fluid in lateral ventricles; choroid plexus injected and covered with fibrin and pus; ℥ss of sero-purulent liquid in third ventricle; cerebral dura mater injected; ℥ss of serum in arachnoidal cavity; pia mater infiltrated with fibrin and pus, following the course of the large vessels and sulci; fibrin and pus over spinal cord, the largest amount in the lumbar region. Ibid.

CASE 26. Male, æt. 28 years; duration six days. Cerebral membranes rather dry; a deposit of yellowish opaque fibrin over upper and anterior part of each hemisphere; also over base of brain, extending into the fissures, and over a portion of the cerebellum; whole length of spinal cord covered with a deposit similar to that upon the brain, less in quantity towards the upper extremity of the cord than below; lungs pale and healthy; liver and kidneys of dark colour; fibrinous coagula in each side of heart; ℥ss of serum in pericardium. J. F. Adams, Bost. Med. and Surg. Journ., Aug. 16, 1866.

CASE 27. Female, æt. 50 years; duration four days. Whole brain œdematous, serum escaping on pressure; a small quantity of serum in ventricles; cerebral meninges injected and cloudy; ℥iv to ℥v of serum escaped from cavity of cranium; points of hepatization in the lungs; red corpuscles crenated; a small fibrinous clot in left ventricle, but blood otherwise fluid; slight effusion in pleural cavity. Dr. Hutchinson, Amer. Jour. of Med. Sci., July, 1866.

CASE 28. Male, æt. 75 years; duration four days. Brain hyperæmic; much serum in ventricles, coagulating after exposure; also greenish pus in ventricles; cerebral dura mater congested; small wart-like bodies extending into brain from dura mater; surface of brain covered with a greenish substance of cheesy consistence, which in some places concealed the convolutions, but elsewhere occupied only the intergyral spaces and depressions; heart, spleen, and liver large; kidneys normal; pink spots on mucous surface of stomach. Robt. T. Edes, M.D., Amer. Jour. of Med. Sci., July, 1864.

SERIES III.—*Duration over twenty-one days.*

CASE 1. Male, æt. 24 years; duration two months and seven days. Brain-tissue œdematous; a small portion of right middle lobe softened next to lateral ventricles; ventricles filled with clear serum; pia mater at base of brain thickened and opaque; on convex surface normal; spinal pia mater in dorsal region infiltrated slightly with pus; a thin layer of pus on posterior surface of cord, but none around posterior roots of nerves; left lower lobe in a state of red hepatization; emphysema of right lung. Bellevue Hospital, June 17, 1872.

CASE 2. Male, æt. 8½ years; duration two months. Cerebral convolutions flattened; sulci narrow; brain-tissue in the neighbourhood of subarachnoid space somewhat softened; ℥iij to ℥iv of serum with flocculi of lymph in lateral ventricles; pia mater slightly adherent to base of brain, and fibrin in its meshes, especially upon the inferior surface of the cerebellum; no fluid in subarachnoid space; fluid in spinal canal increased; fibrinous exudation in pia mater around posterior and inferior portion of the cord; arachnoid in this situation adherent to dura mater by fibrin, and formed connective-tissue; spleen and other organs of trunk normal, except congestion of kidneys. Ibid., June 20, 1872.

CASE 3. Duration thirty-five days. Portions of brain softened, also the medulla oblongata and pons Varolii; over the greater part of the posterior portion of the brain was a layer of fibrin, and along the course of the vessels in this situation pus was observed; dura mater dry and adherent to calvarium; about three pints of turbid serum escaped in attempting to remove the brain; only the cervical portion of spinal cord was examined, and this was found covered with greenish-looking fibrin; dark grumous blood with shreds of fibrin in the right cavities of heart; spleen rather large; common bile duct inflamed and impervious; other organs and tissues healthy. J. W. Moorman, M.D., Amer. Journ. of Med. Sci., October, 1864.

CASE 4. Male, æt. 23 years; duration thirty-five days. ℥ij of serum in lateral ventricles; congestion of cerebral pia mater; yellowish fibrinous deposit in intergyral spaces upon upper surface of hemispheres; also a similar deposit with pus over pons Varolii and medulla oblongata; thoracic and abdominal organs healthy. J. B. Upham, M.D., Boston Medical Journal, April 16, 1863.

CASE 5. Male, æt. 21 years; duration twenty-two days. Brain somewhat softened; ℥iij of serum in ventricles; cerebral sinuses filled with dark blood; diffused redness of pia mater over cerebrum and cerebellum; fibrinous exudation over medulla oblongata two lines thick; yellowish serum in sheath of spinal cord; cord completely encased in fibrinous exudation one-quarter inch thick. Ibid.

CASE 6. Male; duration five weeks. Substance of brain of normal consistence and no blood points on its cut surface; more than ℥iij of turbid serum, containing purulent matter, escaped from the interior of the brain; veins of cerebral meninges somewhat injected; a thin milky fluid in places over surface of cerebrum; a small fibrino-purulent coagulum upon the upper surface of each cerebral hemisphere; a layer of tenacious fibrin three-eighths of an inch thick over the origin of the nerves of special sense, pons Varolii, medulla oblongata, and posterior fissure of cerebellum; Peyer's patches presented the shaven beard appearance, but otherwise the organs of the trunk were normal. Ibid.

CASE 7. Male, æt. 40 years; duration six and a half weeks. Brain of normal consistence; lateral ventricles distended with exudation containing pus; choroid plexus infiltrated; anterior two-thirds of cerebrum covered with fibrin of a greenish-yellow colour; adhesions of pia mater, inferior surface of anterior lobes, optic commissure, crura cerebri, and pons Varolii covered with exudation; pus upon medulla oblongata. W. S. Armstrong, Atlanta Medical Journal, June, 1866.

CASE 8. Female, æt. 18 months; duration twenty-four days. Brain normal; bloody serum in ventricles; entire pia mater of brain deeply injected, and posterior portion engorged. Charles Chester, M.D., Medical and Surgical Journal, November, 1847.

SERIES IV.—*Duration unknown.*

CASE 1. Male, æt. 20 years. Purulent liquid in all the ventricles; cerebral meninges and surface of brain greatly congested; pus on convexity and base; pus over posterior surface of cord in lumbar and dorsal regions; none in cervical; softening of cord in upper part of dorsal region; mucous membrane of

bladder injected and softened; bloody urine in bladder; urethra congested; lower lobes of lungs congested. Bellevue Hospital, April 13, 1872.

CASE 2. Male, æt. 23 years; duration more than one week. Sero-purulent liquid in lateral and fourth ventricles; cerebral pia mater infiltrated with pus at several points at base and over convex surface; below brachial plexus spinal pia mater infiltrated with a thick layer of pus, completely covering the cord; kidneys and lungs congested; spleen large. Ibid., April 29, 1872.

CASE 3. Male, æt. 43 years; duration more than one week. Sero-pus in ventricles; fibrin and pus over convex surface of brain, and at base in the meshes of the pia mater; a small plate of bone in spinal pia mater; fibrin and pus in pia mater, over posterior inferior two-thirds of cord at points; cord not notably changed. Ibid., May 7, 1872.

CASE 4. Female, æt. 20 years; duration more than ten days. Numerous blood points on incised surface of brain; turbid serum and fibrinous flocculi in lateral ventricles; choroid plexus and velum interpositum coated with fibrin; cerebral dura mater more vascular than normal; vessels of pia mater over entire brain hyperæmic; slight increase of subarachnoid fluid; spinal fluid turbid and quantity increased; slight exudation in spinal pia mater and a few adhesions between arachnoid surfaces; blood fluid and gas bubbles in cavities of heart; Ojss of bloody sero-pus in left pleural cavity; left lung coated with soft blood-stained shreds of fibrin; this lung compressed; hypostatic congestion and œdema of depending part of right lung; liver large, flabby, and fatty; spleen normal; fatty degeneration of tubuli uriniferi. Ibid., May 10, 1872.

CASE 5. Male, æt. 47 years; duration probably about two days. Blood points on incised surface of brain; a large amount of transparent serum in ventricles; vessels of cerebral pia mater, arterial and venous, engorged; membranes thickened, adherent, and opaque (was an habitual drunkard); a considerable quantity of clear liquid under the meninges, over convex surface, and at base of brain; spinal membranes congested, but free from exudation; blood fluid, and of a dark-brown colour; no notable change observed in the organs of the chest. W. H. H. Githins, M.D., Amer. Journ. of Med. Sci., 1867.

CASE 6. Male, æt. 17 years; duration more than five days. Numerous blood points on incised surface of brain; meninges of brain somewhat congested; arachnoid slightly cloudy; lungs greatly engorged, and containing spots apparently apoplectic; spleen greatly enlarged, and hyperæmic; liver slightly enlarged and congested; some of Peyer's patches raised; other organs normal. Dr. J. B. Upham, Boston Med. and Surg. Journ., vol. lxviii.

CASE 7. Male, æt. 25 years; duration probably less than one week. Whole brain substance injected; pus in posterior part of right ventricle; choroid vessels full; walls of ventricles opaque; serum in lateral and third ventricles; pia mater congested and adherent in places to the brain; upper portion of spinal pia mater injected; lower portion not examined; lungs intensely congested, and of a deep-red colour; right lower lobe solidified; nodules of pneumonia in left lung; heart substance, liver, intestines, and kidneys injected and dark; "spleen not overfull and rather light-coloured." John A. Lidell, M.D., Treatise on Apoplexy, etc., page 331.

CASE 8. Male, adult. Brain softened; ventricles not distended, normal; dura mater adherent to the meninges covering the brain; arachnoid thickened and without lustre; vessels of pia mater engorged with dark blood; yellow purulent matter in intergyral spaces of cerebrum; fluid in subarachnoid space slightly turbid and quantity increased; arachnoid and pia mater showing evidences of inflammation over entire cord; in region of third and fourth dorsal vertebræ ℥j of pus; cord softened opposite third and fourth dorsal vertebræ; normal above and below. F. C. Lœber and A. T. Watson, American Medical Times, May 7, 1864.

CASE 9. Male, adult. Substance of brain congested, and numerous blood points on cut surface; ventricles not distended, but posterior cornu of right

ventricle contained a little pus; a thick layer of fibrin in the sulci of cerebrum; more at vertex than laterally; increased quantity of clear fluid in subarachnoid space; entire base of brain covered with fibrin; the least upon the cerebellum; appearance of spinal meninges the same as cerebral; blood fluid, not coagulating in several hours. Ibid.

CASE 10. Female, adult. Brain much congested; a small amount of fluid in lateral ventricles; ependyma thickened and congested; cerebral dura mater injected, ℥jss of sanguinolent fluid in cavity of arachnoid; purulent exudation in pia mater along longitudinal and Sylvian fissures, at base of brain and in sulci between convolutions; pia mater agglutinated with fibrinous exudation and hyperæmic; the spinal meninges, as far as could be observed from the cranial cavity, resembled the cerebral; portions of lungs hepatized; ℥j of bloody fluid in pericardium; soft clots and fluid blood in cavities of heart; spleen normal; liver congested; ecchymotic points in mucous membrane of stomach. Charity Hospital, March 24, 1872.

CASE 11. Male, adult; duration probably three days. Effusion of serum in cavity of cerebral arachnoid; meninges hyperæmic, and deposit of fibrin over anterior surface of cerebrum, and a thick deposit over and around the optic commissure, over entire cerebellum, crura cerebri, pons Varolii, and medulla oblongata; exudation over entire length of cord to cauda equina; spinal nerves enveloped by the deposit; pus at points along the cord; organs of trunk apparently healthy; right cavities of heart distended with blood and a large clot in right ventricle. W. S. Armstrong, Atlanta Medical and Surgical Journal, June, 1866.

The blood undergoes changes, which are due in part to the inflammatory, and in part to the constitutional and asthenic nature of the disease. The proportion of fibrin is increased in cases that are not speedily fatal, as it ordinarily is in idiopathic inflammations. Analyses of the blood published by Ames, Tourdes, and Maillot, show a variable proportion of fibrin from 3.40 to more than six parts in 1000. In sthenic cases accompanied by a pretty general meningitis, cerebral and spinal, there is, after the fever has continued some days, the maximum amount of fibrin, while in the asthenic and suddenly fatal cases, with inflammation slight, or in its commencement, the fibrin is but little increased. The most common abnormal appearance of the blood observed at autopsies, is a dark colour with unusual fluidity, and the presence of dark, soft clots. Exceptionally bubbles of gas have been observed in the large vessels, and the cavities of the heart. An unusually dark appearance of the blood, small and soft dark clots, and the presence of gas bubbles, when only a few hours have elapsed after death, indicate a malignant form of the disease, in which this fluid is early and profoundly altered. In certain cases the blood is not so changed as to attract attention from its appearance. The points or patches of extravasated blood which are observed in the skin during life in a certain proportion of cases, usually remain in the cadaver. In incising them the blood is seen to have been extravasated, not only in the layers of the skin, but also in the subcutaneous connective tissue. Extravasations of small extent are also sometimes observed upon the thoracic and abdominal organs.

In those who die after a sickness of a few hours or days, namely, in the

stage of acute inflammatory congestion, the cranial sinuses are found engorged with blood, and containing soft, dark clots. The meninges enveloping the brain are also intensely hyperæmic in their entire extent in most cadavers; but in some, in certain parts only, while other portions appear nearly normal. In those cases which end fatally within a few hours, this hyperæmia is ordinarily the only lesion of the meninges; but if the case is more protracted, serum and fibrin are soon exuded from the vessels into the meshes of the pia mater, and underneath this membrane over the surface of the brain. Pus cells also occur mixed with the fibrin, sometimes so few as to be discovered only by the microscope, but in other cases in such quantity as to be much in excess of the fibrin, and be readily detected by the naked eye. Pus, which in these cases no doubt consists of white blood-corpuscles which have escaped with the fibrin from the meningeal vessels, sometimes appears early in the disease. Thus, in the *Dublin Quarterly Journal*, 1866 (Series I., Case 6), Gordon relates a case in which death occurred after a sickness of five hours, and a purulent appearing greenish exudation had already occurred in places under the meninges. The exudation of fibrin commences also in the course of a few hours. Thus in a case of thirty hours' duration published by Dr. Wm. Frothingham in the *American Med. Times*, April 30, 1864, and in another of one day's duration, published by Dr. Haverty in the *Dublin Quarterly Journal* for 1867, exudation of fibrin had already occurred (Series I., Cases 2 and 9). The arachnoid soon loses its transparency and polish, and presents a cloudy appearance over a greater or less extent of its surface. This cloudiness is greatest in the vicinity of the fibrinous exudation, but it occurs also where no such exudation is apparent to the naked eye. Dr. Gordon describes a case of only eight hours' duration, in which the arachnoid was already opaque at the vertex, but of normal appearance at the base of the brain (*Dublin Quarterly Journal*, 1866) though the vessels of the pia mater were everywhere greatly congested.

The exudation, serous, fibrinous, and purulent, occurs, as in other forms of meningitis, within the meshes of the pia mater, and underneath this membrane over the surface of the brain. It is readily raised from the surface of the brain with the meninges. It is most abundant in the intergyral spaces around the course of the vessels, over and around the optic commissure, the pons Varolii, the cerebellum, medulla-oblongata, and along the Sylvian fissures. It is most abundant in the depressions, where it sometimes has the thickness of $\frac{1}{10}$ to $\frac{1}{4}$ of an inch, but it often extends over the convolutions so as to conceal them from view.

Most other forms of meningitis have a local cause, and are therefore limited to a small extent of the meninges, as for example meningitis from tubercles, or caries of the petrous portion of the temporal bone, in both which it is commonly limited to the base of the brain, or from accidents when the meningitis commonly occurs upon the side or summit of the

brain. The meningitis of cerebro-spinal fever on the other hand, having a general or constitutional cause, occurs with nearly equal frequency upon all parts of the meningeal surface, except that it is perhaps most severe in the depressions where the vascular supply is greatest. In cases of great severity, the inflammatory exudation, fibrinous, or purulent, or both, may cover nearly, or quite, the entire surface of the brain. Thus, in the case of a negro, 35 years old, only four days sick, whose body was examined at Bellevue Hospital on May 30th, 1872, the record states that there was a purulent exudation over the entire surface of the cerebrum and cerebellum (Series II., Case 6). The quantity of serous exudation varies greatly in different cases. In some the quantity is so small as scarcely to attract attention, but in other instances, especially when the disease is protracted, it is large. In a case reported by Dr. Moorman in the *Amer. Journ. of Med. Sci.* for Oct., 1866, it is stated that about three pints of turbid serum escaped from the cranial cavity in attempting to remove the brain, but as there was no measurement the statement may be somewhat exaggerated.

In those who die at an early stage of the disease, the vessels of the brain, like those of the meninges, are hyperæmic, so that numerous "puncta vasculosa" appear upon its incised surface. At a later period the hyperæmia, like that of the meninges, may disappear. If there is much effusion of serum within the ventricles and over the surface of the brain, the convolutions are apt to be flattened, and the pressure may be such, that the amount of blood circulating within the brain is reduced below the normal quantity. Thus, in the case of a child of three years, who lived sixteen days, and was examined after death by Burdon-Sanderson, the ventricles contained a large amount of turbid serum, and the brain substance was everywhere pale and anæmic.

Cerebral *ramollissement* occurs in certain cases. At one of the examinations in Charity Hospital, the patient having been only three days sick, the brain was found much softened. The dissection was made seven hours after death, so that the softening could not have been cadaveric (Series I., Case 24). At one of the post-mortem examinations in Bellevue Hospital, softening of the fornix, corpus callosum, and septum lucidum was observed; and in another, softening in the neighbourhood of the subarachnoid space (Series II., Case 7, and Series III., Case 2). In a case related by Dr. Moorman in the *Amer. Journ. of Med. Sci.* for Oct., 1866, it is stated that portions of the brain, medulla oblongata, and pons Varolii were softened (Series III., Case 3). In a case observed by Dr. Upham (Series I., Case 29) there was softening of the superior portion of the left cerebral hemisphere. Occasionally the whole brain is somewhat softened. Burdon-Sanderson, Russell, and Githens, each relate such a case. Moreover, the walls of the lateral ventricles are ordinarily more or less softened in these cases, as in the ordinary form of meningitis. In rare instances the brain is œdematous as in a case published by Dr. Hutchinson in the *Amer. Journ. of Med. Sci.*

for July, 1866. In this case the patient was only four days sick, and the whole brain was œdematous, serum escaping from the incised surface (Series II., Case 27).

The ventricles contain liquid, in some patients transparent serum, in others serum turbid and containing flocculi of fibrin or fibrin with pus. The liquid in the different ventricles as they intercommunicate is similar. The choroid plexus is either injected or it is infiltrated with fibrin and pus. In advanced cases with the abatement of the inflammation absorption commences. The serum obviously disappears soonest and the pus and fibrin more slowly, by fatty degeneration and liquefaction. Still absorption and the return of the brain and meninges to their normal state are slow, and hence the tediousness of convalescence. An infant, whom I was allowed to examine in the practice of another physician, took the disease at the age of five months, and two months subsequently, great prominence of the anterior fontanelle and other symptoms indicated still the presence of a considerable amount of effusion within the cranium. No post-mortem examinations, so far as I am aware, have yet revealed the state of the brain and meninges in those who have had this disease at some former period and entirely recovered from it, but it is not improbable that some opacity and preternatural adhesions in places may continue for life.

The remarks made in reference to the cerebral apply for the most part to the spinal meninges. There is at first intense hyperæmia of the membranes usually over the entire surface of the cord, soon followed by fibrinous, purulent and serous exudation, in the meshes of the pia mater, and underneath this membrane. Thickening and opacity of the meninges, and often adhesions, occur in protracted cases. The exudation is sometimes confined to a portion of the meninges, more frequently that covering the posterior than anterior aspect of the cord, but it may occur in any part, and in severe cases the entire pia mater of the spine is infiltrated with it. The exudation may have the usual appearance of fibrin and pus, but it is sometimes greenish and sometimes blood stained. Small extravasations of blood almost necessarily occur as a result of the intense hyperæmia, and in one case related by Burdon-Sanderson it is stated that there was a layer of blood $\frac{1}{8}$ of an inch thick over the whole cord below the bronchial swelling. In post-mortem examinations the central canal of the cord has usually been overlooked. Ziemssen relates a case, and Gordon another, in which it was dilated and filled with purulent fluid. The anatomical changes which have been observed in the cord itself have been injection of its vessels in recent cases, and occasional softening of portions. Thus, in a case which was examined in Bellevue Hospital, April 13, 1872, it is stated that there was softening of the cord in the upper part of the dorsal region. In most of the examinations the only abnormal appearance observed in the cord was hyperæmia, but in a considerable proportion of cases the records state that the substance of the cord appeared normal.

No constant or uniform lesions occur in the organs of the trunk. The most common is congestion of the lungs, especially of the posterior portions, with more or less œdema, and nodules of hepatization or points of extravasation. Effusion of serum, sometimes blood stained, occasionally occurs in the pleural and other serous cavities. The auricles and ventricles of the heart, as already stated, contain more or less blood, with soft dark clots in the more malignant and rapidly fatal cases, but larger and firmer in those which have been more protracted. The spleen, liver, kidneys, stomach and intestines, one or more, are sometimes congested, but in other cases their appearance is normal. The absence of uniformity as regards the state of the spleen, the fact that in many patients it undergoes no appreciable change, is important, since this organ is so generally enlarged and softened in infectious diseases. The agminate and solitary glands have ordinarily been overlooked at post-mortem examinations, but in certain cases they have been found prominent.

TREATMENT. *Preventive.*—Although we do not fully understand the conditions in which cerebro-spinal fever originates, it is certain, from facts observed in epidemics, that we are able to do something to diminish its severity and prevalence and to protect the community. Measures to this end must be of a twofold character, namely, such, in the first place, as are calculated to improve the surroundings of the individual, so as to conduce to a better state of health, and secondly, the regulation of his mode of life. Cleanliness and dryness of streets and domiciles, perfect drainage and sewerage, prompt removal of all refuse matter, avoidance of overcrowding, so as to procure the utmost salubrity in the atmosphere, the use of plain and wholesome food—in a word, the strict observance of sanitary requirements in all the surroundings—cannot fail to reduce the number and diminish the severity of cases; for, as we have seen, this disease assumes its worst form and numbers the most victims where anti-hygienic conditions most abound. Of scarcely less importance is a strict surveillance of the mode of life, especially of children and young people, during the time of an epidemic. We have seen that this disease not infrequently follows irregularities in the mode of life, excesses of whatever kind, and fatigue, mental or bodily. These should therefore be avoided. A quiet mode of life and moderate exercise, plain and wholesome and regular meals, and the full amount of sleep afford some, but not complete, security in the midst of an epidemic.

Curative.—It will aid in determining the proper mode of treatment to bear in mind the anatomical characters as ascertained by post-mortem examinations. As the chief danger in the first days is from the intense inflammatory congestion of the cerebro-spinal axis, the prompt employment of measures calculated to relieve this is of the utmost importance. To this end bladders or bags of ice should be immediately applied over the head and nucha, and constantly retained there during the first week.

Bran mixed with pounded ice produces a more uniform coldness, and is more comfortable to the patient, than ice alone. Cold produces a prompt and powerful effect in diminishing the turgescence of the cerebral and meningeal vessels. A hot mustard foot-bath or general warm bath with mustard, should also be employed as early as possible, since it acts so powerfully as a derivative from the hyperæmic nerve centres, tends to calm the nervous excitement and prevent convulsions. An enema to open the bowels is also proper.

Should bloodletting be employed, especially in the more sthenic cases? Even in the commencement of the present century, when it was customary to bleed generally or locally in the treatment of inflammatory and febrile diseases, a majority of the American practitioners whose writings are extant discountenanced the use of such measures in the treatment of this disease. Drs. Strong, Foot, and Miner, though under the influence of the Broussaian doctrine, were good observers, and they soon abandoned the use of the lancet and leeches in the treatment of these patients for more sustaining measures. Strong, who published a paper on spotted fever in the *Medical and Philosophical Register*, in 1811, states that certain physicians employed venesection as a means of relieving the internal congestions, but finding that the pulse became more frequent after a moderate loss of blood, they soon laid aside the lancet. Some experienced physicians of that period, however, continued to recommend and practise depletion, general as well as local, as, for example, Dr. Gallop, who treated many cases in Vermont in the epidemic of 1811.

No physician at the present time recommends venesection, but some of the best authorities, as Sanderson and Niemeyer, approve of local bleeding in certain cases. It may be stated as a safe rule that leeches or other modes of local depletion should not be prescribed in a large majority of cases, and if prescribed in any case it should be on the first day, for on the first day the maximum of inflammatory congestion is attained, and in no case should more than a very moderate quantity of blood be abstracted. Blood should only, in my opinion, be abstracted, and in small quantity, from the temples or behind the ears, in the more sthenic cases, in which, after the prompt employment of the other measures recommended, the stupor becomes more and more profound, and the patient appears already in incipient coma. But in allowing a moderate depletion it must not be forgotten that the disease is in its nature asthenic, and in its subsequent course will require sustaining measures. It is apparent, however, that the abstraction of blood if once allowed is likely to be recommended too frequently in the treatment of this disease by those who have had but little experience with it, for the state of most patients in the commencement seems so critical, and the stupor so great, that the most energetic measures seem to be required. But if the blood of patients is spared, and they are promptly and properly treated otherwise, it is surprising to see how many

emerge from the stupor and finally recover. For example, in a case related to me by Dr. Griswold, the patient seemed to be comatose for three days, being apparently unconscious and the pupils scarcely responding to light, but he recovered without losing blood. In only one case have I recommended the abstraction of blood, and this was so instructive that I will briefly relate it.

M., a female, 4 years old, was seized at 2 A.M. March 7, 1873, with vomiting, chilliness, and trembling, followed by severe general clonic convulsions lasting about fifteen minutes. On visiting her early in the morning, I found her semi-comatose, with a pulse of 132, which in a few hours rose to 156; temperature 101¼°, respiration 44; eyes closed; pupils moderately dilated and responding feebly to light; surface presenting a dusky mottling; constant tremulousness, and frequent twitching of limbs. Four grams of bromide of potassium were ordered to be given every hour to two hours, with the usual local measures, namely, ice to the head and nucha, and a hot mustard foot-bath, followed by sinapisms to the extremities.

8th. Pulse 136; is partly conscious when aroused, but immediately relapses into sleep; head considerably retracted; bowels constipated; vomits occasionally; temperature 102°. Treatment, a leech to each temple, on account of the extreme stupor; other treatment to be continued.

9th. The leech-bites bled, though slowly, nearly five hours; pulse 180, and so feeble as to be counted with difficulty; temperature 101½°. The patient is evidently sinking. Treatment, a teaspoonful of Bourbon whiskey in milk every two hours, beef-tea and other nutritious drinks frequently, also the bromide at intervals. Evening, pulse 172, still feeble.

10th. Pulse 180, barely perceptible; great hyperæsthesia; temperature of axilla 100°, of fingers and hand below 90°; axes of eyes directed downwards.

11th. Pulse still very feeble, varying from 160 to 228; temperature 102¼°. There has been no intermission in the use of the stimulants or nutriment night or day; pupils moderately dilated and somewhat more sensitive to light.

After this the patient gradually rallied for a time, so that the pulse became stronger and less frequent, but death finally occurred after nine weeks in a state of emaciation and extreme exhaustion. Slight convulsions occurred in the last hours.

It is seen that after the loss of blood from two leech bites, this patient passed into a state of extreme exhaustion so that for three days I did not believe that she would live from one hour to another, and death finally occurred. Although the loss of blood may have been useful in relieving the stupor, yet a worse danger resulted. Experience like this, which I believe corresponds with that of other observers, shows how seldom and with what caution the blood of the patient should be abstracted.

The internal remedy most in favor with the profession of this city, and justly, in the first stage of this disease, is the bromide of potassium, especially in the treatment of children. Evidently a remedy is required which will diminish the calibre of the arterioles, and consequently the hyperæmia of the cerebro-spinal axis and its meningeal covering. Ergot has been employed for this purpose, and in some instances with a satisfactory

result; but bromide of potassium, while it contracts the arterioles of the encephalon, is at the same time a powerful sedative to the nervous system. More than any other safe internal remedy, it prevents convulsions in children, which occurring in this disease add a passive to the already intense active congestion of the cerebro-spinal axis. This agent in medicinal doses produces no ill-effect except when given frequently for a lengthened period, when it may accumulate in the system. A child of five years may take five or six grains every two, three, or four hours, according to the urgency of the case. After the first week it should be given less frequently and finally omitted. The practice of some physicians, of continuing the use of the bromide in frequent large doses after the first or at least second week, is to be deprecated, for after a time it is apt to produce symptoms which can with difficulty be discriminated from those of cerebro-spinal fever. These are stated as follows by Mr. Wood: "Great muscular debility, dimness of sight with dilated pupils, irregular gait, the patient reeling as though intoxicated, whilst nausea, vomiting, or purgation, with abdominal pain of a dull aching character, may also be present." (*British Med. Journ.*, Oct. 14, 1872.) It is obviously better after the first week, if the symptoms are no longer urgent, to discontinue the bromide entirely, than to continue its use in such doses and for such a period that there may be danger of producing its physiological effects. Nevertheless it is proper to resume its use during periods of recrudescence which are so apt to occur at any stage of the disease.

The bromide can not be depended on to allay the pain which often, on account of its severity, requires immediate treatment, and sometimes it does not allay the excessive agitation. For these symptoms an opiate is indicated, which in my practice has produced a much more satisfactory result than hydrate of chloral. Quite moderate doses are sufficient to produce the effect desired. A patient of six years was quieted by $\frac{1}{12}$ part of a grain of sulphate of morphia. So useful are opiates in allaying pain in this disease, that some observers, as Niemeyer and Ziemssen, consider them the most valuable of the internal remedial agents which we possess, and the benefit from their use in these cases has certainly had considerable effect in disabusing the minds of physicians of the dread which they have entertained of their employment in acute affections of the brain. Mannkoff and others have employed subcutaneous injections of morphia.

Quinia is suggested as a remedy by the paroxysmal character of the pains and the fever, but I believe that I am sustained by the general experience of physicians in this city in stating that it has very little effect upon either of these symptoms, or upon the course of the disease. I have employed it in small and large doses, as many as fifteen grains per day to a child of thirteen years, but am not aware that it has been of any

service except as a tonic. There is perhaps no better remedy for the nausea than bismuth in large doses.

Frequent counter-irritation along the spine by dry cups or an irritating liniment is useful from the first, and vesication of the nucha by cantharidal collodion or otherwise when the ice-bag is discontinued. Sustaining measures should also be commenced early. Tonics, vegetable and ferruginous, should be administered after the disease has continued a few days, alternating with and finally superseding the bromide. I have in some cases employed the citrate of iron and ammonia. The diet must be nutritious, consisting of the meat broths, milk, etc., during the entire course of the disease. Most patients require alcoholic stimulants sooner or later. In cases presenting a feeble pulse, and other evidences of prostration, their early and continued employment is advisable, as in the case which I have related, in which whiskey was administered every two hours after the second day. The constipation is ordinarily best relieved by enemata. The room should be dark, of comfortable temperature, and quiet.

ART. II.—*Six Cases of Lumbar Colotomy, with Remarks upon this Operation, and a Table of Eighty Cases in which it was Performed.* By ERSKINE MASON, M.D., Adjunct Professor of Surgery in the University of New York; Visiting Surgeon to the Charity and the Roosevelt Hospitals, New York.

CASE I.—Mrs. F. A., aged 39 years, had been suffering from venereal stricture of the rectum for two years. When she first came under my observation she had a very tight annular stricture about one inch above the anus. Failing to accomplish much by the use of bougies, I divided the stricture in several places with Cooper's hernia knife on the 2d of July, 1870; I then dilated the parts first with my finger then by a bougie, and discovered by this means the presence of another stricture one inch above the first; spiral in form, which extended up the bowel for about two inches; this stricture I also divided, and, while the patient was under ether, dilated it with bougies till the largest size was passed. Her condition was by this operation greatly relieved. Bougies were introduced at intervals of three or four days, and the diarrhœa and pain, from which she had suffered, diminished. About this time she was suffering from some uterine disturbance; she was transferred to the uterine ward of Charity Hospital, where the use of the bougie was unfortunately discontinued. A month after this it was noticed that constriction of the rectum had again returned. Bougies were resorted to and the stricture was also ruptured. In March I found the constriction was so great that it only allowed the introduction of the end of the index finger. When I came on duty the following April, her condition being no better, I proposed to her the operation of opening the colon after Amussat's method, as a last resort.

The patient having agreed to this proposal, I performed the operation

of lumbar colotomy on the 8th of May. Just before the operation the colon was distended by a large quantity of warm water, and a tampon introduced to prevent regurgitation. A pillow was then placed under the right side, and the rules laid down by Mr. Allingham for finding the colon were strictly followed. Having divided the deep fascia, the intestine, of greenish-hue and greatly distended, made its appearance. This was carefully examined both by myself and several of my colleagues, and we had no doubt but that it was the descending colon which we were observing, indeed some of us thought that its longitudinal bands were apparent. Two sutures were passed through the gut, and the intestine was then well drawn up, attached to the integument, and a longitudinal opening made in the gut, half an inch or more in length, when out gushed a large quantity of comparatively clear water (which we took to be the enema which had been administered) and which had a feculent odour. The patient did well until May 11th; the pain she had previously suffered having ceased. At 11 o'clock that night, while being moved from one bed to another, she complained suddenly of a pain in her back, and this continued more or less until the following afternoon, when I was surprised to find her with an anxious countenance, hands, arms, and face quite cold, respiration thoracic and very rapid. The wound had united firmly throughout its whole extent, but there was an erysipelatous blush all around it. I opened one end of the wound and allowed exit to about two teaspoonfuls of pus, which afforded relief to the pain in her back. I saw her again about 9 o'clock that evening, when she was passing rapidly into a comatose state. The erysipelas had extended by this time all over the back and for a considerable distance up the side of the body, and the edges of the wound which had been opened presented the appearance of commencing hospital gangrene. During the last five hours of her life she had complete suppression of urine.

Autopsy.—As made by Dr. Edward G. Janeway, thirty-seven hours after death. Rigor mortis almost wanting; skin slightly jaundiced; edges of wound everted, and presented a gangrenous appearance; blood throughout the body black and fluid. Upon opening the abdomen, no general peritonitis was found; the cavity contained about three ounces of bloody serum. Peritoneum covering the spleen was adherent to the diaphragm by old adhesions. The lower end of the great omentum was bound down in the pelvic cavity by old adhesions to the uterus, thus pulling down the transverse colon and its splenic flexion; the latter towards the median line, so that its course lay over the anterior border of the kidney. The descending colon, instead of occupying its normal position, lay over the hilus of the kidney and outer border of the psoas muscle, was empty and contracted. There was a clean transverse opening through the peritoneum, half an inch above the crest of the ilium, an inch and a half in length; through this opening a knuckle of the jejunum passed, and was stitched to the skin on either side of an opening corresponding to the inner one. This portion of the intestine was eight inches from the duodenum. The peritoneum covering this portion of the intestine for four inches upwards, and eight inches downwards, presented evidences of recent inflammation. These portions of intestines had become adherent to one another, and to the peritoneal opening, so as to close the latter. The mucous membrane of the jejunum at the artificial opening was simply congested; there was no evidence of peritonitis around the opening. Ascending portion of the duodenum was adherent to gall-bladder by old adhesions. The uterus was

adherent to the rectum, closing Douglas's *cul de sac*. She evidently at some time had had pureperal peritonitis. Microscopical examination of kidneys showed blood effused in a few malpighian bodies; the latter were granular, in some their capsules were thickened. In the convoluted tubes the epithelium was granular, increased in size, nearly filling the tubes, but intact. Straight tubes; epithelium detached, showing in some places the tubes almost entirely denuded. The stroma showed increase of connective tissue, with some free oil globules. The liver structure showed the liver-cells large, granular, and fatty.

The points of great interest in this case are:—

1. The false position of the jejunum, so enormously distended.
2. The abnormal position of the colon.
3. No peritonitis immediately around the wound.
4. The relief of rectal pain after the operation.

CASE II. *Cancerous Stricture of the Rectum.*—Mrs. A. S., aged 64; mother of fourteen children, ten of whom were living. There was no hereditary taint of cancer in any of her family, and had always enjoyed good health until five years ago, when she first noticed some pain on defecation. She became a patient in Charity Hospital May 8th, 1871. At this time she was extremely feeble, and her sufferings were frightful. For some days she suffered from absolute constipation, this condition alternated with diarrhœa and bloody discharges, accompanied with intense bearing down pains. A tight stricture was discovered about two inches from the anus, and the whole recto-vaginal wall was infiltrated with a cancerous mass, as well as the neck and posterior portion of the fundus uteri. There was also present a recto-vaginal fistula. Her condition on the 26th of May was such that it did not appear possible for her to last many days, but for the sake of giving her some ease from her agony, I proposed colotomy. This was readily agreed to by the patient and her friends, and on May 27th, I did the operation, which she bore remarkably well. The distressing pain and constipation were much relieved, and she was in a condition, temporarily at least, to make life tolerable. For a month she may have been said to have greatly improved; her appetite improved and she gained in strength. The disease, however, progressed, and she died from exhaustion on the 27th of August, just three months after the operation.

At the *autopsy* all the organs of the pelvis were found matted together in one cancerous mass, the muscles and bones being also involved. At a point midway between the promontory of the sacrum and the anus, the rectum had entirely disappeared.

CASE III. *Cancerous Stricture of the Rectum.*—Mrs. E. W., aged 37, has had seven children; family all healthy; has never known any of her relatives to have had cancer. She was a large, stout woman, but of late has lost flesh rapidly. I first saw her about June the 1st, 1871, with Dr. Edward G. Janeway, who placed her under my care. With the exception of an attack of inflammatory rheumatism six years ago, she has enjoyed good health, till last October, when, getting her feet wet, she was seized the following morning with severe pain through her hips and urgent desire to evacuate the bowels. Her bowels previous to this had been constipated. In her efforts at stool, she stated, at this period, she had no fecal movement, but a slimy bloody discharge. From this date followed

the usual train of harassing symptoms attendant upon cancer of the rectum. On examination, per vaginam, a hard mass was felt in the recto-vaginal septum. The rectum, about two inches from the anus, was blocked up by ulcerated cancerous deposits so as only to admit the introduction of the little finger, and that with great pain. There was also an ulceration upon the margin of the anus which appeared two months ago. She had also a purulent offensive discharge from the bowel. At this time she was suffering from diarrhœa, having some ten passages during the day, and each movement attended with excruciating pain, while at night she was tormented with lancinating pains through the pelvis. I advised her to submit to colotomy at once. For the purpose of having the operation performed she entered Charity Hospital, June 12th, and that afternoon, the bowel having been somewhat distended with warm water, I opened the descending colon in the left lumbar region. The operation was performed without any particular difficulty, but owing to the large amount of adipose tissue in this region, and remarkable development of the muscles, the depth of the wound was unusually great. The operation was finished and patient placed in bed at 10 minutes after 4 o'clock. 5 P. M., pulse good and full, 92; temperature 98°; complains of some pain in the wound; 10 gtts. Magendie's solution of morphia were given simultaneously. 7.45 P. M., pulse 120, has vomited several times. 10½ P. M., complains of pain in the wound; pulse and temperature the same; 30 gtts. of tinc. opii with some whiskey given by the mouth.

June 13. Slept better during the night than she has done for some time before; pulse 120, temp. 101½°; tongue dry, and still complains of the wound and some pain in left iliac region. She took that day milk punch and some morphia. Evening, pulse 132, temp. 101½°, face flushed, respiration hurried, tongue slightly coated and dry, vomited during the day, has had two movements of the bowels, both per rectum and artificial opening. Pain over iliac region somewhat increased by pressure. She was given tinc. aconite rad. gtts. ij with liq. ammon. acet. ℥j every two hours, and a warm fomentation applied over the abdomen. 11 P. M., pulse 140, has great thirst, face flushed, respiration hurried, countenance anxious, vomited once during the evening; slept a good deal during the night.

14*th*. A. M., pulse 136, temp. 99½°; great thirst, countenance still flushed, is sweating; wound is erysipelatous, and its edges swollen, removed some sutures, and some sanious fluid was discharged; takes milk and beef tea in large quantities, with ice. Evening, pulse 132, temp. 102°; face less flushed; 11 P. M., has not slept this evening; complains of some colicky pains.

15*th*. A. M., pain over abdomen has disappeared; sweating; pulse 136, feeble; temp. 98½°; did not sleep the previous night; has vomited several times during the night, and stomach still irritable; more sutures removed and more sanious discharges followed; erysipelatous blush is less, though the parts are considerably swollen and the wound looks bad. Her countenance appeared better and respiration was less hurried; sol. of 20 grs. quinia were injected into the colon through artificial opening. 6 P. M., unable to pass her water; a small quantity of dark red smoky urine was drawn and found to contain albumen, with numerous blood and granular casts. Pulse 136 and weak, temp. 102°; sweating continues, hands and feet cold; tongue dry and brown, anxious countenance, and respiration again hurried; bowels moved through the artificial opening during the day, and she vomited several times; rum was administered, but she vom-

ited it; stimulants were given every hour, some of which she retained. 10 P. M., pulse 150 and can hardly be felt; extremities cold, is sweating profusely; recognizes no one, tosses about the bed.

16*th*. A. M., pulse 136, temp. 100°; slept but little during the night; looks badly, sweats profusely, respiration less hurried. She asked for a cup of coffee and an egg, which she took with relish; she also takes her stimulants—20 grs. sol. of quinia were thrown into the colon. Wound dressed as usual with carbolic acid; its edges are covered with a gray slough—it is offensive. 12 M., pulse cannot be counted; patient very restless, sweats profusely, respiration hurried and difficult; died quietly at 2 P. M. During this period of five days, the patient was never known to have had any chilly feeling, and after the operation no longer complained of her rectal difficulty.

Three hours after death we were permitted to make but a partial examination of the abdominal cavity only. The colon was found to have been opened behind the peritoneum—that membrane not having been wounded. In this vicinity there had been some slight peritonitis, the gut being slightly adherent to the abdominal walls, and for about two inches there was some injection of its vessels. There was no general peritonitis; the intestines, except that portion of the colon mentioned, were remarkably pale. The cancerous disease had involved all the pelvic organs. The kidneys were deeply congested.

Just about this period several cases of erysipelas and pyæmia made their appearance in the wards of the hospital. This patient, however, was in a private room on the first floor of the hospital, far away from any other patient, save the one whose history is given in our Case II.

CASE IV. *Intractable Stricture of the Rectum.*—John M., æt. 26, single, wood turner, admitted into Roosevelt Hospital February 15th, 1872. Family history good, never has had syphilis. Two years and a half ago had an attack of dysentery, and six months after his recovery, he began to complain of pain in the bowels; this was accompanied by constipation, which caused him to strain violently while at stool, and the feces were passed in scybalous masses. December 25th, 1870, he had a severe attack of enterorrhagia, and for weeks following passed considerable blood. It would occasionally occur during straining at stool, but gradually decreased till February of the same year when he ceased losing blood. Slowly but perceptibly the act of defecation became more and more difficult, accompanied by a dull burning pain, most intense in the middle of the sacrum, and extending down into both thighs. In the rectum there was an annular stricture three and a half inches up the gut, more indurated on the anterior wall, and about three-eighths of an inch in diameter; defecation is imperfectly performed and accompanied by intense pain; he suffers almost constantly from a dull gnawing pain in the sacrum; this pain at times he describes as lancinating. His general condition is bad; is pale and very weak; when he walks he has a peculiar gait which he says is due to the pain in his back; while sitting he constantly assumes different postures to relieve a sense of constriction which he then feels in the rectum. The stricture admitted the tip of the index finger, and for some time was treated by the careful introduction of bougies, and a sedative injection, either of opium or the following ℞., bismuth. sub. nit. ʒij, glycerinæ, aquæ āā ʒij. Kissengen water was also given for the purpose of rendering the passages more soluble.

May 31. Speculum revealed an ulcerated condition of the bowel, chiefly on the left side of the rectum. The passage of the bougies was now discontinued, owing to the distress they produced.

June 5. Again began to pass blood from his bowels, and at times would have considerable hemorrhages which considerably reduced him, and for the relief of these injections of liq. ferri. persulph. ʒij, aqua ℥viii, were resorted to. Shortly after this date a tumour was discovered in the posterior wall of the rectum, which was ulcerated; through the abdominal walls the lumbar glands were felt enlarged, so also were the inguinal glands. He now was never free from sharp lancinating pains through the pelvis, and to the rectal trouble were now added pain and difficult micturition. The disease was now regarded both by myself and some of my colleagues as in all probability malignant in character. His condition rapidly growing worse, the bowels only being moved by cathartics, he finally consented to the operation of lumbar colotomy on left side, which I did, with the assistance of my colleagues, on the 26th of June, 1872.

Patient rested well that night, being freed from the incessant pain he had so long endured.

27*th*. A. M., pulse 112, temp. 102°. Urine had to be drawn by catheter; complains of no pain; 5 ♏ of Magendie's solution of morphia given.

29*th*. Bowels move through the opening in the colon, catheter no longer has to be used.

30*th*. All sutures removed. Has considerable diarrhœa to-day, though he feels well; movements take place through artificial opening.

July 11. He is sitting up, though his diarrhœa and a urethritis, which were induced by the use of the catheter, continue.

13*th*. He is out of bed, though feels quite weak. The general condition of this patient was greatly improved by the operation, and for some time he had no recurrence of anything like the old agony he before experienced. Occasionally feces would pass beyond the artificial opening, and then he would be subjected to considerable irritation in the rectum, and complain of a burning sensation in the region of the rectum. This also gave rise to great straining at stool, which caused more or less prolapsus of the bowel at the loin. This was readily reduced, and no serious inconvenience ever followed, the patient readily returning the protrusion himself. He has been the subject of repeated attacks of diarrhœa which at times reduced him very much; he also has suffered considerably from seminal emissions, and an irritable condition of the bladder. In spite of these serious drawbacks, he nevertheless has gained in flesh and strength since the operation.

Oct. 25. A rectal examination reveals a great change in the condition of things; the stricture is much nearer the anus than formerly, and the little finger readily passes through it, and as far as the finger can reach the gut presents a normal feel; nowhere is there any tumefaction or induration to be felt. The edge of the stricture is very thin and to the touch is not very painful.

Without giving the lengthy details of the case as recorded in the hospital record, it is sufficient to state, that attempts have been made at various times to dilate the stricture with bougies, and they have been used up to size No. X; but owing to the discomfort which after a while they invariably gave rise to, and a reappearance of the burning sensation in the rectum, this mode of procedure could only be adopted from time to time. To allay these painful sensations various injections were resorted to, such as nitrate

of silver, iodoform, and the extract of hamamelis virginica. These would all act favourably for a time, and then lose their effect. The most serviceable of all, however, has been the extract of the hamamelis virginica.

Dec. 5. Several sinuses appeared around the artificial opening, these were opened and dressed in the usual way, and some of them have healed.

1873, *May* 8. He at times complains of pain in the rectum, which is much congested and exhibits spots of ulceration near the anus, a few sinuses near the artificial anus are still open but granulating; he, however, is decidedly better than he has been for months past. During all this time the patient has been up and about the wards (and on two or three occasions has been out of the hospital), with the exception of those periods when he was suffering from sharp attacks of diarrhœa, and even then would frequently rise and walk to the closet when the bowels moved.

CASE V. *Stricture of Rectum* (*Cancer*).—Mrs. S. E. D., aged 42, widow, dressmaker, admitted into Roosevelt Hospital Nov. 13th, 1872. Father and mother died of consumption. Patient was married at seventeen, has enjoyed good health till five years ago, since which time she has been losing flesh and strength; has had four children. Since she was nineteen has been subject to hemorrhoids, and her bowels have been more or less constipated. About two years since she began to complain of great fatigue upon the slightest exertion, and constipation alternating with attacks of acute diarrhœa and "cramps" came on. When diarrhœa was not present, feces were passed in small pieces and flattened. Blood and slimy material were also passed. The pain she experienced was bearing down, not lancinating. Soon after this an abscess appeared in the left side of the vagina, just within the orifice, which, after a little, broke, and left behind a recto-vesical fistula, through which feces were discharged during the act of defecation. The desire to go to stool soon became very frequent, and the act attendant with intense pain. On admission she seemed apparently in good health, though complained of feeling very feeble; she was of extremely nervous temperament; slept but little, and her eyes were red from almost constant crying. Appetite pretty good; no cough; heart and lungs normal; urine scanty and dark coloured, but contained no casts or albumen. Examination of rectum revealed the presence of two strictures, the first about one inch and a half from the anus, and the second an inch and a half above the first; the margin of the strictures as well as the mucous coat of the bowel was ulcerated, and the recto-vaginal wall very much thickened, and my impression was that the uterus was also involved in the disease. The strictures admitted the passage of rectal bougie No. 5. The slighest examination of these parts gave rise to severe pain and considerable prostration. Patient was placed upon tonics, and she desiring to obtain whatever relief I could afford to her sufferings, I opened the descending colon in the lumbar region on Jan. 27th, 1873. The gut was readily reached, and a ligature being passed through it, it was drawn well up into the wound, opened, and the injection of warm water which had previously been administered gushed out, together with considerable fecal matter. Through some unaccountable accident the ligature slipped through the walls of the bowel, and the gut fell into the bottom of the wound, and in my attempt to sieze it, so as to bring the opened portion of the gut in situ again (which was done in a moment), my finger wounded the peritoneum and passed into its cavity. The wound was dressed in the usual manner, and patient put to bed; the operation being finished about four o'clock, P. M.

7 P. M., patient evidently labouring under great shock, pulse 112, and small; temp. 102°; gave sol. morphia, Magendie, xij gtts.

She did well for the first 24 hours, after which symptoms of local peritonitis about the wound appeared, which greatly subsided under the free use of opium, quinia, and hot fomentations. General condition began to fail at noon, Jan. 29th, when stimulants were freely used; 12 hours prior to fatal result, pneumonia was discovered over the entire right lung, and there was complete consolidation at time of death, which occurred at half past nine, Jan. 29th. No *autopsy* could be obtained.

CASE VI. *Ulceration of Rectum, Stricture; Recto-Vesical Fistula.*—Mr. G. W. H., aged 27, had always enjoyed good health till three years ago, when in April, 1871, he was seized one night with severe pain in the region of the umbilicus, this was associated with fever and tenderness upon pressure over the abdomen, the "bowels were also swollen." He was under the care of a homœopathic practitioner at that time, who told him he had peritonitis, for which he was ordered an injection of water and castile soap, and subsequently took five pills, which moved his bowels. This attack continued for nine weeks, during which his bowels were regular. At the end of that period he gradually got better, and though feeble and emaciated, resumed his work as clerk in the post-office, where he continued until October, 1871, when he had to give up, on account of an attack of fever and ague, and of this he has had repeated attacks up to the time of his death. About March, 1872, he began to experience a constant pain in the region of the bladder; the appetite and strength failed very fast, and the bowels became loose, and in a few months the dejections became slimy but not offensive. He was then seen by Dr. W. R. Gillette, who discovered that the rectum was ulcerated. Shortly after this, wind and small pieces of white material commenced to be discharged from the urethra. Feces soon began to pass through the urethra, and urine by the rectum. From this time he has been more or less a great sufferer, though at times would be able to resume his work for a few days. About March 1st, 1873, he was sent to me by Dr. Gillette, for the purpose of having an operation performed. I found him extremely weak and nervous, and in the habit of taking large quantities of laudanum for the purpose of relieving his pain and diarrhœa, which latter troubled him greatly early in the morning. Upon rectal examination, the bowel was found very much ulcerated, and two slight constrictions were appreciable opposite the promontory of the sacrum.

With the intention of doing colotomy I sent him to the Roosevelt Hospital, March 3d. Here his condition improved and he abandoned the use of laudanum. Desiring to put off the operation for a while longer, he left the hospital March 15th, and went into the country, where his general health was greatly benefited. I now urged him to have the operation done at once, while his general condition was so good, but desiring to return to his work again for a short time, he postponed it. Soon all his old symptoms returned, and with greater severity. At times his agony was frightful, his bladder becoming filled with feces, and the great distress which it caused the patient to void his urine, soon reduced him to a very critical situation. He now desired me to resort to the operation, which I did, for the purpose of affording him some slight temporary relief.

He re-entered the hospital May 9th, 1873, in a most debilitated condition, and with the expectation, both on the part of the patient and myself,

that he could live but a few days. Indeed I had grave doubts if he would survive the operation.

On the afternoon of May 12th, I opened the descending colon in the lumbar region. This time I injected the gut with air previous to the operation, in place of water, as had been my previous habit, and made my incision through the tissue oblique, as suggested by Mr. Bryant. Contrary to my expectation, but very little shock followed the operation, and on the following day he stated he felt better than he had for two weeks. During the first night nothing but urine passed through the artificial opening.

May 13th. There is but little discharge of urine and feces from the urethra, but a slight discharge of pus. Without giving a detailed account of his further daily history, it will be sufficient to state that his general condition markedly improved, and he was relieved of all his old pain. This gratifying condition continued till May 24th, when he had a recurrence of his old ague. This was controlled by quinia; but from this time his appetite failed, and he grew more and more feeble; latterly refusing all food, and died without pain, from exhaustion, June 3d, at 4 P. M., 22 days after the operation.

The *autopsy* showed the intestines firmly bound down in the pelvic cavity from the result of tubercular peritonitis. The mucous coat of the colon was in several places the seat of tubercular ulceration, and the rectum also was extensively ulcerated. Posteriorly there was a communication from the rectum into the bladder, which admitted the index finger; just along-side this opening was another about the same size which opened into a loop of colon, which was firmly adherent to the bladder. The bladder was very small, its walls thickened, and the mucous coat ulcerated and covered with a diphtheritic membrane; the prostate was the seat of an abscess; with the exception of the lungs, the apices of which were the seat of tubercular deposit, the other organs appeared healthy.

The operations resorted to at the present day for the purpose of relieving patients suffering from retention of feces, may be described as those proposed by Littré, Callisen, and Amussat. We believe it was Littré who, in 1710, first suggested the propriety of opening the intestine through the abdominal walls for this purpose.

In these cases he advised that the sigmoid flexure be opened in the left iliac region; the operation being suggested in reference to infants with imperforate rectum. The earliest record that we have of this operation having been done in the adult is by Pilhore, of Rouen, in 1776, but, in place of opening the colon in the left side, he modified the operation by operating in the right iliac region, and there opened the cæcum.

This method of operating upon the adult is now very justly abandoned, unless in exceptional cases, for the same reasons that would render it suitable in infants, viz., anatomical grounds.

To avoid the dangers attendant upon opening the peritoneum, as well as placing the artificial anus in a more convenient location, Callisen suggested the propriety of the operation we now style *lumbar colotomy*. This suggestion was made in 1796, and consisted in opening the descending colon from behind, between the duplicature of the peritoneum, by a *vertical incision* in the left lumbar region.

It appears that in practising this operation upon the dead body of a child, he failed in reaching the intestine without wounding the peritoneum, and abandoned the idea; at least we have no record of his ever having practised it upon the living, and we have the statement of many subsequent writers, that the idea was abandoned, and, for a time at least, its great value was lost sight of. Velpeau in his surgery says, "It is not worthy of being rescued from the oblivion to which the moderns have consigned it. Incomparably more difficult, and not less dangerous, than the preceding [Littré's], it would be also more inconvenient."

The operation which at the present day is chiefly resorted to in the case of adults, bears the name of that of Amussat. While attending the great Broussais for scirrhous disease of the rectum, this skilful surgeon was led to reflect upon the various means that had been proposed for the formation of an artificial anus, and as a result of his studies, he modified the method devised by Callisen, so that he considered it not only a safe but justifiable operation.

While Callisen intended to do the operation on the left colon in the lumbar region, and by a vertical incision through the integument and muscles, Amussat applied it to the ascending colon in the *right* lumbar region, and by a *transverse incision*. In this consists all the differences of the operation as devised by these surgeons. The operation at present called lumbar colotomy, is now chiefly performed in the left lumbar region (though it may be equally applicable to the right side), the situation suggested by Callisen, but by the transverse incision proposed and performed by Amussat. The credit of this operation may therefore with truth be said to belong equally to both Callisen and Amussat.

Though Littré and Callisen never applied their operations to the living subject, this was not the case with Amussat, who first did his operation upon the adult, June 2d, 1839; and in the papers he published upon this subject in the years 1839 and 1841, he relates six cases in which he had performed the operation, and in five of these it was successful. This being a matter of record, and his first case being alluded to by Mr. Erichsen (in his work on *Surgery*), who was present at the operation, we were not a little surprised to find that Mr. Allingham, in his recent work on *Diseases of the Rectum*, referring to Amussat's paper published in 1839, "*On the possibility of establishing an artificial anus in the lumbar region*," remarked, "It is by no means certain, however, that he ever performed the operation." Such little favour had this operation found with surgeons, that at the time of publishing his last paper, Amussat found but six cases, with the exception of his own, where the operation had been performed, three of them in France and three in England.

While referring to these various modes of opening the intestine, we must not omit that of Finc, of Geneva, who for retention of feces opened, in the umbilical region, the transverse colon. It was, however, his inten-

tion to establish the artificial anus in the small intestine, but the transverse colon presented and was opened. (*Brit. and For. Med.-Chir. Review*, 1844, vol. 18.) This was done in 1797. We find in our researches but little concerning this operation. There is a record of two cases where this operation has been performed—one by Kade (*Petersburg Med. Zeitschrift.*, xii. fas. 2, 3, 1867), the other by V. Wahle (*ibid.*, xii. fas. 5, 1867), and in both these cases death resulted.

In the performance of colotomy circumstances will at times arise which will call for a modification in the course and direction of our external incisions. Thus in very corpulent persons, some may prefer to combine the incisions of Callisen and Amussat, or some other line of incision may be indicated, should a curvature of the spine be present, rendering the space between the last rib and crest of the ileum too contracted for the ordinary method to afford room for our manipulations, as occurred in a patient of Mr. Bryant, whose case is given in our collection of cases.

Amussat's method certainly affords advantages over the incision of Callisen, in that it gives us more room; the muscles, being cut across, for the most part, readily retract, and if nerves are exposed they can be more easily avoided, and wounded vessels better controlled. Mr. Bryant has adopted an *oblique incision*, first used, we believe, by M. Baudens, in 1842, for the opening of the ascending colon (*Med.-Chir. Trans.*, vol. xxxv. p. 99), and claims that "it gives more room for manipulation when the colon is empty, it takes the line of the nerves and vessels that traverse this part and lessens the risk of their division. It follows the ordinary integumental fold of a patient when assuming the recumbent posture, and thus favours repair, and seems to tend much towards the prevention of the prolapse of the bowel that is always prone to follow such an operation." (*Bryant's Surgery*, p. 369, Am. ed.)

We adopted this incision in one of our cases where the space between the last rib and crest of the ilium was very narrow, and were much pleased with it; as for its tendency to prevent the prolapse of the bowel taking place, sufficient time did not elapse before the death of the patient to warrant us in deciding as to its advantage over the transverse incision. As to its protection of vessels and nerves, we would say, the nerves may readily be avoided, and bleeding will often amount to nothing, at times not a vessel requiring the ligature, whether we adopt either the oblique or transverse incision. In truth it may matter but little what method we shall pursue, the great desideratum in the operation being to avoid wounding the peritoneum.

The operation as now performed is done almost exactly in accordance with the rules laid down by Amussat. At first surgeons would resort to this operation only after constipation had existed for some length of time; then, the bowel being distended by its contents, it would be readily distinguished. Now, since in many cases the operation is resorted to at

an earlier stage of the disease, it becomes of very great advantage to distend the colon. This may be done either by a large warm-water enema or by distending the intestine with air. We believe this was first practised by Mr. Allingham. I have made use of both these methods, and decidedly prefer air to fluid. Its advantages consist both in its cleanliness and the avoidance in a great measure, at times altogether, of a fluid commingled with fecal matter saturating the wound, which often, we think, delays a speedy union of the wounded structures, not to mention the danger, if the peritoneum be opened, of the fluid entering its cavity and giving rise to fatal peritonitis. Should we pursue the practice of Amussat and tap the intestine first with a trocar, this might perhaps be avoided in the case of fluids, but not in every case, as our experience has testified.

Whatever course we pursue, it perhaps may seem superfluous to remark that the injection should not be made till the patient is fully under the anæsthetic, and the rectum then may be plugged with wet lint and maintained in position by the finger of an assistant. Were this plan not adopted, we should but inflict unnecessary pain on the patient, and by the time we came down upon the bowel we might find, not a distended intestine, as we anticipated, but a collapsed bowel, owing to the injection having escaped per anum.

The lumbar region, in which the operation of colotomy is to be performed, is a quadrilateral space, having for its boundaries, above, the last rib, below, the iliac crest, behind, the longissimus dorsi and sacro-lumbalis group of muscles, while anteriorly, it is a vertical line drawn from the centre of the crest of the ilium to the last rib. In this space the colon lies in front of the kidney, separated from it by adipose tissue; the centre of this space corresponds with the deep or fascia transversalis, and is separated from the quadratus lumborum muscle by some adipose tissue. Anteriorly and externally the colon is in contact with the small intestines, and its distance from the spine must vary according as it is distended or contracted. The great point, however, is the relation of its posterior aspect to the peritoneum. Amussat believed that in the adult a lumbar meso-colon never exists, that the colon is free from peritoneum, at least on its posterior third, and that the cellular tissue external to the peritoneum formed its outer sheath. This cellular space, caused by the separation of the layers of peritoneum, begins at the union of the transverse and lumbar colon, having no very distinct line of demarcation below, but usually ceases about the crest of the ilium. Its lateral extent is defined by two of the three longitudinal bands peculiar to the great intestine, one of these bands running in front of the lumbar colon, the other two externally and internally just along the lines where the peritoneum is reflected on the parietes of the abdomen. The condition of these parts will of course vary according to the manner in which we examine the in-

testine, whether it be distended or collapsed. If the abdomen be opened in front, and we draw the colon forward, we sometimes *cause the appearance* of a meso-colon ; the practical point being, however, that the extent that is free of peritoneum depends upon the calibre of the gut. When it is much contracted it will be noticed that there will exist a very small interval between the peritoneal folds; when it is distended the small intestines are pushed back, and the portion uncovered by peritoneum will be increased according to the distension of the colon. Now should the colon be opened, its contents escape, but it will not retract as would the small intestines, because it is adherent to the abdominal walls by its posterior surface. Hence, if we carry our incision of the fascia too far towards the anterior spine, we are very liable to wound the peritoneum, especially if the gut be contracted. When the intestine is opened, its edges being confined to the integument, the entire calibre of the gut will not prolapse, as it would in the case of the small intestine; the posterior wall only yielding, thus forming a prolonged tube communicating with the gut. Passing the finger into the gut we do not meet any, or if at all only a slight, salient ridge (éperon) opposite the opening. The same disposition may be found on the right side, though here the relations of the peritoneum will be found to be more variable. Amussat contends also that the disposition of the parts is even more favourable to colotomy in early life than in adults. It not being our intention to speak in this paper of the applicability of colotomy in infants, we pass over the noticing of these views.

The patient should be placed in the prone position, slightly inclined to the right side, with a small hard pillow (air cushion) under the left side, this makes the parts more tense and prominent.

Preparatory to the operation, I have always followed the rule laid down by Mr. Allingham in the *St. Thomas's Hospital Reports* for 1870, viz., to mark out the anterior superior and the posterior superior spinous processes of the ilium, then, finding the centre point between these two spines, to draw a vertical line a full half inch behind this centre spot—for beneath this line we shall be sure to find the colon if it be in its normal position. Mr. Allingham remarks that, "from more than fifty dissections and the experience of over thirty operations, I can confidently assert, that the colon is always, normally, situated opposite this point." We are fully prepared to confirm this statement, both from experience on the living, as well as often repeated trials upon the dead subject; and we also agree with the statement of this writer, that the tendency is to look for the colon in front of the spot above indicated. Such being the case, the advantage of first drawing a vertical line over the colon is sufficiently obvious, as in the progress of the operation it affords us an unerring guide.

In following the transverse incision of Amussat, which should be four or five inches in length, and about midway between the crest of the ilium and last rib, let its centre cross the vertical line; while, if we pursue Mr.

Bryant's suggestion, and make an oblique incision, we pass downwards from the lower rib in the direction of the superior spinous process of the ilium, the centre of the incision bearing the same relation to our vertical line as in the preceding method. The various underlying structures should be divided deliberately, and to the extent corresponding with the length of our incision through the skin, until we come down upon the fascia transversalis, or edge of the quadratus lumborum muscle. All bleeding should be arrested as we proceed, and certainly it should be fully stopped before we proceed with the further steps of the operation. Those who for the first time do this operation, may be amazed at the depth this incision may be, especially if there be much adipose tissue present or the muscles well developed, while if these factors be absent in the case, they may reach the deep fascia before they are fully aware of it. Now, if we desire, percussion will readily indicate that we are in close proximity to the intestine. The fascia lumborum with its muscle is readily recognized, and should be carefully divided, when almost invariably there will appear the subperitoneal fat which covers the colon; the amount of this will vary greatly in different individuals, but we have always observed it in some degree. At this stage of the operation, as we have been carefully cutting through this adipose tissue and its connective tissue, in whose meshes it is held, it separating at times in layers as it were, and the intestine shining through, we have had surgeons question if it were not really peritoneum that our knife had passed through. So constant has this adipose tissue been present in the cases, even in thin subjects, that I have operated upon, both in the hospital theatre and in the dissecting room, that, were I not to meet with it, I should at once question whether the peritoneum had not been opened.

A question will naturally arise, how shall we know if it be really the colon we have exposed? *First*, by its distension and greenish hue, if we have previously distended it. *Secondly*, we may perhaps be enabled to distinguish its peculiar bands, though in this we may be deceived, as was shown in my first case reported in this paper, where several observers, as well as myself, felt sure we had recognized them. *Thirdly*, by the following rule which Sir Phillip Crampton said was laid down by Amussat; we quote it as given in the *Dublin Med. Press* for March 5, 1845; and also in the *Am. Journ. of the Med. Sciences* for Oct., 1845, page 494.

"At a meeting of the Surgical Society of Ireland, Sir P. Crampton said that M. Amussat had discovered a sign which if not actually diagnostic (for perhaps it could not always be appreciated) yet bid fair to do much towards removing the difficulty in question, and had actually removed it in M. A.'s last operation; this sign rested on the fact, that the small intestines sustained a motion of alternate ascent and descent corresponding to expiration and inspiration, in which the lumbar colons did not participate; if, therefore, the exposed intestine presented this oscillation, it was small intestine, if it did not, it might be presumed to be the colon."

Fourthly, If we have strictly followed the rule laid down above, we

may be convinced that we are in the normal situation of the bowel, and if it be empty or flaccid, we may safely search for it at the bottom of the wound, with a confidence that our exploration will not be unavailing.

At this stage of the operation the bowel being freed from the sub-peritoneal fat, it may project up into the wound; it is well also to roll it slightly over towards the anterior spine of the ilium so as to bring that portion more into view that is uncovered by the peritoneum. If vomiting take place from the effect of the anæsthetic at this stage of the operation, place the hand over the wound, else the colon may be forced up into the wound with such force as to tear its peritoneal attachments.

Should it be deemed necessary for any reason to inspect the bowel farther before proceeding with the operation, I would strongly counsel against allowing the finger to be passed into the wound on the anterior side of the intestine, else we will be very liable to injure the peritoneum, as has happened to us in one case. Were this accident to occur, we should at once seize with the forceps the torn membrane, and tie it as we do a wounded artery; this practice has been pursued, and no unpleasant effects have followed.

Before opening the bowel, pass two ligatures through it by means of a curved needle, and having drawn the intestine well up into the wound pass these ligatures through the integument of the upper and lower side of the wound and tie them,—then fill the wound either with lint or sponges, now open the bowel either with the knife or scissors between the ligatures. The incision need not, we think, extend for more than an inch in length, and may be either vertical, transverse, or crucial, as it pleases the operator. Thus we prevent the gut, if filled with air, from falling into the bottom of the wound, and its contents there becoming extravasated, and in a great measure prevent cut muscles from being soiled with fecal discharges. At times the bowels will be at once copiously relieved through the opening thus made, while again some hours will elapse before a discharge will occur. Indeed at times it has been found necessary, especially where constipation has long continued, to resort to injections, and even scooping out the hardened feces through this opening, before the bowels become unloaded. Should an evacuation not take place at once, we would advise any further solicitation to be deferred until after the patient has fully reacted from the operation, and the wound has been sealed by plastic material.

The wound through the soft parts should be thoroughly cleansed and brought together by sutures (we prefer here the silver wire, as less liable to induce suppuration), a few fine additional sutures through the bowel confining it to the integuments, completes the operation.

The after-treatment of the wound differs in no respect from that of any other wound. In my cases I have invariably covered the back and side immediately about the wound with lint spread with oxide of zinc ointment,

and in some instances carbolic acid has been added. This is changed as often as it becomes soiled, thus we have prevented chafing which would perhaps otherwise have occurred. After the bowels have been freely moved once or twice, it will be a source of great comfort to the patient to have a pad placed over the artificial opening and a bandage applied; this being readily removed whenever necessity reqnires it. For the purpose of pad we have used oakum, which, from its odor, feeble power of absorbing the discharge, as well as its unirritating properties, has always proved a grateful appliance. The stitches which have confined the bowel to the integument may be safely removed by the fourth or fifth day, or else left to nature to be cast off. If the case progresses well and the patient feels able, there will be no impropriety in allowing him to sit up in bed by the fifth or sixth day. Indeed we have had him out of bed by that time.

In those cases where constipation has long existed, and copious evacuations have suddenly taken place after the operation, we may find faintness occur or a sense of great prostration complained of,—this is readily relieved by a body bandage, and the administration of brandy and ammonia.

Excessive vomiting has taken place in some cases that have been recorded and are given in our table; so obstinate has this at times proved, that patients have succumbed to its prostrating effects. This has been attributed to the influence of chloroform by those who have lost patients in this manner. We have never had this very troublesome symptom except in one patient, but it subsided after the first twelve hours, though ether is the anæsthetic we have always employed.

With reference to this vomiting, Mr. John Couper, in the *British Medical Journal*, 1869, vol. ii. p. 556, while relating a case of his own which had resulted in death from this cause, remarks that chloroform vomiting has been hitherto a not unfrequent cause of death after colotomy, and states that Mr. Curling records a case of death from this cause fifteen days after the operation, and a like result has happened in the practice of Mr. Maunder. He does not seem inclined to attribute this entirely, however, to chloroform; as he suggests that it may be due to the proximity of the colon and stomach to the solar plexus, both receiving nerves from this source, and the laying open of the colon and traction upon it causing reflex irritability of the stomach. Cases of death from this cause have not been sufficiently frequent however to militate against the operation, and if it be really due to chloroform, we should avoid it, by resorting to the safer anæsthetic—ether.

Soreness and some tenderness may be complained of around the side and over the region of the left iliac fossa for twenty-four hours after the operation, due no doubt to the distension of the colon which our injections produced, the result of the wound and the natural inflammation that follows; this readily subsides, either by itself or by warm fomentations and a dose of morphia.

One other phenomenon, which almost always occurs later in the case, to a variable degree, may manifest itself soon after the operation, and of this we think the patient should be made aware, for, should it take him unawares, it may prove a source of unnecessary alarm, as it did in one of our cases, and so terrified the patient that he fainted—we refer to prolapse of the bowel at the artificial opening; this prolapse may amount to several inches; it causes no trouble, however, as it is readily reduced either by the finger or rectal bougie.

Some have noticed a contraction of the opening take place either during the process of healing or some little time afterward, and affording an obstacle to the ready evacuation of the bowels. We have never observed this in any of our cases. When it shows itself, however, a conical plug, we think, would counteract it; should this not prove sufficient, the opening should be enlarged either by the sponge-tents or the knife; in one case that has been reported the actual cautery was successfully used; this was in a case, if we remember aright, where the opening in the colon was encroached upon by exuberant granulations from the muscular tissues about the wound. Any other indication that might arise calling for special treatment would require only such as would suggest itself to any surgeon. As to the matter of diet we have never felt it necessary to restrict our patients.

While referring to the position of the patient during the operation, we described the one usually selected as the most convenient for perhaps both patient and surgeon. The operation has been done, however, with the patient sitting down and leaning over the back of a chair, ether spray only being used to benumb the parts in the region of the incision.

To the credit of American Surgery, we must not leave the operation of lumbar colotomy without referring to the fact, as recorded in the *Transactions of the College of Physicians, Philadelphia*, vol. 1, 1842, page 99, that on the 15th of March, 1838, Dr. W. Ashmead, of Philadelphia, in the case of a female, aged 38, with scirrhus of the rectum, opened the descending colon in the left lumbar region, "by a vertical incision in the triangular space between the edges of the obliquus externus and latissimus dorsi muscles, without injury to the peritoneum. He was led to do this operation, after considerable study upon the cadaver, believing it to be a superior method to the one proposed by Amussat;" and the paper states that not until two years after his operation did he hear that Callisen had proposed a similar method. His patient did well till the end of ten or twelve days, when diarrhœa set in, and she died of exhaustion on the sixteenth day.

Of the various methods that have been proposed for opening the colon we give the decided preference to that which is known as Amussat's; especially does it appear applicable to those cases which in adults we believe call for the operation of colotomy. Applicable as it is for either the

ascending or descending colon, we prefer the opening to be made in the left lumbar region whenever it is admissible, as some recent cases appear to show that when the right colon is opened, patients emaciate sooner—a fact which shows, perhaps, that the large intestine has greater powers of absorption than is commonly attributed to it. Though not, strictly speaking, coming under the head of colotomy, it may be not amiss to observe in this paper, that where circumstances demand it, the small intestine may be opened, and with results far more favourable than at first thought might be anticipated. This remark is abundantly fortified by the cases that have from time to time been reported in the various medical periodicals, and which we have read while pursuing our study of the literature of colotomy, and, indeed, we may say, in way of parenthesis, that the whole subject of relieving intestinal obstruction by means of abdominal section is deserving of more notice than is at present given to it by our profession, at least in this country, and if the operation be resorted to sufficiently early in the disease, before the vital powers are at their lowest ebb, the result will be more satisfactory.

Under this head we cite the following case, recorded in the *Medical Times and Gazette*, 1869, vol. ii. p. 280, occurring in the practice of M. Dolbeau, at the Beaujon Hospital. The operation was performed on July 3d, 1869, upon a man 32 years of age, who had obstruction of the bowels due to swallowing cherry-stones; there was a swelling in the right umbilical region, and here the ilium was opened; nearly two handfuls of cherry-stones and a large quantity of fluid came through the opening. Patient recovered and, the report states, was well fifty days afterwards.

Dr. Fagge, in his article on intestinal obstruction, in *Guy's Hospital Reports*, for 1868, states that of 75 cases of intestinal obstruction treated at the hospital in fifteen years, 17, about one-fifth, were from bands; and Dr. Brinton, in his work on *Intestinal Obstruction*, found that in 600 cases of obstruction, 31 per cent. were from bands, 43 from intussusception, 17 from stricture, 8 from torsion. In most of these an operation could have afforded relief. In the cases where obstruction was caused by bands, the small intestine was implicated in 95 per cent. Where the difficulty was due to twisting or stricture, 88 per cent. of all the cases he analyzed involved the large intestine.

Intestinal obstruction, it is well known, is divided into two classes—acute and chronic, and each of these, in a measure, has symptoms peculiar to its respective class. We also know that, for the most part, acute cases denote trouble in the small intestine, while chronic cases point to the colon as being at fault. That cases are met with, where the symptoms are so blended that it is difficult, if not impossible, to diagnosticate to which bowel the seat of trouble belongs, is equally true. It is not in the province of this article to discuss the symptoms of these two classes of cases; sufficient is it to state that it will require a most careful consideration on the part of the

surgeon before an intelligent resort to surgery can be brought to bear upon the case.

The peritoneum is still justly held in great respect by surgeons and any encroachment upon it abstained from whenever possible, yet wounds of this membrane are not now held in such dread by the surgeon as formerly, for our means of combating peritoneal inflammation are more efficacious, as the results of our cases show, and the portion of membrane wounded has often lost its peculiar physiological properties and its pathological tendencies before being injured by the knife. Thus, among the cases of colotomy we find many where the peritoneum has been wounded, either purposely, as in Littré's and Fine's operation, or accidentally, as in Amussat's, which have terminated favourably.

Mr. Martland's case, recorded in the *Edin. Med. and Surg. Journal*, vol. xxiv., and also reported in Mr. C. H. Hawkins's excellent paper on colotomy, in vol. xxxv. of the *Medico-Chirurgical Trans.*, of a man aged 44, with stricture, and whose colon was opened in the left iliac region, was living seventeen years after the operation; and this, if not the longest duration of life where colotomy has been done in the adult for the relief of stricture of the rectum, is certainly among the most favourable results of the operation that have been recorded.

The case of M. Reybard, reported also in Mr. Hawkins's collection of cases, shows to a surprising degree what liberties have been taken with both peritoneum and colon. In a man aged 28, with cancer of the sigmoid flexure of the colon, three inches of the left colon were cut out, and the ends sewn together in the left iliac fossa. This patient recovered, and died one year after the operation from the return of the disease, which made its appearance in the same locality six months after the operation.

Of all the cases recorded where the colon has been opened without injury to the peritoneum there are *very, very few* where death can be attributed to the operation. True, cases will be found in both Mr. Hawkins's collection of cases as well as in those in this paper, where death has followed soon after the operation, yet a careful study of these cases will show the statement just made to be correct. No more can death be said to follow as the result of this operation, than that for strangulated hernia, or tracheotomy for the relief of certain cases of asphyxia, or the ligation of a wounded artery at the seat of wound to arrest hemorrhage. On this account, therefore, may we more readily urge patients to avail themselves of the benefits which colotomy holds out, than would otherwise be the case, did the *mortality from the operation* give a different result.

This operation, though originating in France, does not appear to have been frequently resorted to by the French surgeons, and the same may be said in reference to German operators. In our own country, from the few cases reported, one would suppose that our profession was utterly ignorant of the great relief from suffering this operation may afford, and

of its ability, in many cases, of restoring to health and usefulness those sorely afflicted with disease. Among our own surgeons we have been able to find *but thirteen cases* reported, where colotomy has been done, and eleven of these will be found among our tables of cases, though it is very likely that cases may have been overlooked by me in my researches, or that journals containing them have not been within my reach. Be this as it may, the operation in our own land may be said to be in its infancy. The first operation that was done in the United States was, we believe, by Prof. J. M. Bush (*Am. Journ. of the Med. Sciences*, N. S. vol. xix. p. 275) in December, 1847, for cancerous stricture of the sigmoid flexure, the patient, a lady, dying from peritonitis from the cancer, on the fourteenth day after the operation.

The English surgeons have certainly obtained, and are fully deserving of, the great credit of having not only popularized the operation, but perhaps also of extending its field of usefulness, and causing it to be deservedly recognized among the justifiable operations of modern surgery.

Among the names of those who have probably done most to cause the operation to be favourably received, and now so generally done throughout the United Kingdom, though it may be chiefly in London, we would mention the names of Curling, Hawkins, Holmes, Bryant, and Allingham, though we are by no means unmindful of the other hospital surgeons of London who have done much in this direction, so that at present it might be difficult to find one who has not both performed and publicly advocated the operation. To England, therefore, rather than to the home of Amussat, are we indebted for much that we know of the merits and the availability of colotomy in many cases; and that by the labours in this field the sufferings of many patients have been greatly mitigated, all must admit who have ever had any experience in colotomy, or are acquainted with the diseases for the relief of which this operation is resorted to.

If this article, imperfect as it is, should be the means of calling the attention of our profession more fully to this subject, and of inducing them to resort to the operation more frequently than they have heretofore done, we feel *sure* that they will confer a great blessing upon many of their patients, and we will thus be repaid for any labour we have expended in its preparation.

The operation is not only a safe one, when carefully performed, and one which can rarely be said to be the cause of death, but also one which, should any circumstances arise during the performance of the same which seemed to indicate the impropriety of opening the gut, even if the deep fascia be opened, may be abandoned with safety, as is shown by the following case:—

At a meeting of the Royal Medical and Chirurgical Society, June 25th, 1867, Mr. J. C. Forster communicated a case where, for the relief of colloid cancer and obstruction of the bowel, colotomy was attempted; the colon being found flaccid and empty, lying deep in the wound, the incision was closed, and in

four days the parts were perfectly healed. For the further particulars of this case we refer our readers to the April number of the *Am. Journ. of the Medical Sciences* for 1868, p. 544.

Cases are also recorded where the colon has been opened not only in one location, but in two situations at subsequent periods. Thus, in the case of a male patient in the practice of Mr. John Hilton, the colon was first opened in the left loin, after a time a slough came away from the wound, and it closed; eleven weeks afterward the bowel was opened in the left lumbar region. Patient recovered and lived nine months, dying finally from exhaustion. (Case No. 12 of our collection.)

In proof of one of the advantages which colotomy confers upon those suffering from cancer of the rectum, Sir James Paget cites the case (No. 47 of our collection) of a man in whom he had done colotomy for this disease, and says that since the feces had been no longer subjected to the influence of the rectum morphia had completely lost its power of constipating; so the patient could enjoy this drug without becoming constipated. We have never seen this statement confirmed by other operators, nor has our experience verified it, in two cases in which we looked for the result; in one of these cases the bowels were so constipated after it, as to require the use of an enema for their relief.

Colotomy, though first suggested for, and, we believe, first put in practice in, cases of malignant disease of the bowel associated with obstinate constipation, has been amply demonstrated in practice to be equally available, and more successful in future results, in a variety of affections of the bowel other than cancer.

The diseases for the relief of which it has now been done, and for which we advocate its adoption, are those of cancer, intractable stricture of rectum or colon, no matter from what cause, obstruction from the pressure of tumours, which indeed is often but one form of intractable stricture, ulceration of the rectum or colon in some of its phases, and for the relief of vesico-intestinal fistula, especially in the male.

In cancer it was at first adopted only when absolute obstruction to the passage of fecal material had actually taken place, and that after it had existed often for many days, and the sufferings of the patient were extreme; at times, indeed, even when *in articulo mortis*. These cases certainly are not ones to test the merits of an operation, either from a scientific point of view, or as regards the great comfort which is almost sure to follow upon its timely performance. Even at the present day we fear that there are surgeons who are prone to discourage an operation, or in our judgment wait too long before resorting to colotomy.

Not only has the efficacy of this operation been fully proved in just such cases as we have alluded to, but its value has also been shown in those cases which are called painful cancer of the rectum, where even but little obstacle as yet exists to the passage of the feces. To Mr. Curling,

perhaps, more than to any other surgeon belongs the honour of illustrating this fact, and by his writings bringing it to the notice of the profession. That many surgeons have been too backward in realizing the truth of his statements as well as those of many other operators, at least in our own country, we believe to be but too true.

If we wait till the vital powers are almost entirely worn out by long-continued suffering, or until absolute constipation occurs, the shock to the system may at once be so great that the life of the patient is forfeited. We know full well that very many cases are recorded where constipation has existed for weeks, and that, too, associated with cancer of the bowel, the operation has been performed and life prolonged for months. This, however, is no reason why suffering should be allowed to try the vital powers, when a speedy relief may be afforded and the future benefits of the operation greatly enhanced.

Well aware are we that much may be done by medical means for the relief of these patients, and that other operations have been devised and put in practice for their relief. All the other operations, we believe, entail more suffering and danger to the life of the patient, in a majority of instances, and, of course, like colotomy, can only hope to be of but temporary benefit in cases of cancer, and even where they have been done, colotomy will have to be resorted to to give subsequent relief. Some of these operations we have seen tried by others, and in a measure have practised them ourselves; but the impressions we have received are not favourable to their performance in cases of cancer. Indeed, those operations, such as cutting away portions of diseased intestines, or the scooping out diseased masses, as practised and advocated by some of the German surgeons, we cannot but regard unfavourably. These operations being intended as but palliative measures, in this disease, we feel that not only the simplest but the least painful, and the one which exposes the patient to the least risks, should be selected.

Strictures of the rectum are also met with not cancerous in their nature, some of which, as all practitioners well know who have had much experience with stricture, are as deserving of the title intractable as is that class to which we apply this name in the urethra.

In our paper on venereal stricture of the rectum, which appeared in the January number of the *Am. Jour. of the Med. Sciences* for this year, we gave the credit to Mr. Allingham of having first proposed and put in practice the operation of colotomy in this type of stricture. Mr. Curling, in a letter to the editor of this Journal, which appeared in the April number, appears rightly to claim the honour which I had ascribed to Mr. Allingham. It is, therefore, with pleasure that I now correct the error into which I had fallen, and state that Mr. Curling believes he was not only the first to suggest, but also to put in practice colotomy in this class of cases; and in the *London Hospital Reports*, vol. iv., he published two

cases of intractable stricture with ulceration, in which he performed the operation in 1865.

In this class of cases, as with the former, various are the operations that have been employed for their relief; many of these for a time appear to have not only afforded relief but to have cured the patient. Yet the experience of those of the largest acquaintance with these affections, tends to show that the same troublesome condition soon returns. Indeed so exquisite is the pain in many of these cases, caused by the passage of the bougie, that its use not only becomes the source of the greatest injury to the patient, but prevents its use being maintained for the purpose of keeping up the dilated condition of bowel which our operation has temporarily produced. The cause of the bougie often giving rise to this intolerable anguish has been satisfactorily explained, we think, in that fascinating book of lectures, by Mr. John Hilton, on *Rest and Pain*. He truly remarks that often "diseased conditions of the upper, middle, or lower part of the rectum, except the last inch or two, induce but little pain." The reasons for this he fully explains and illustrates in his consideration of the mucous membrane of the rectum.

With these very cases at times it has been found that after colotomy, feces no longer continuing to irritate the strictured gut, the stricture will, as it were, give way, and its irritability cease. This is well illustrated in those cases where there is present more or less ulceration in addition to stricture. But *few* cases of this class occur, we imagine, where these two lesions do not exist. This condition of things was well shown in the fourth case given from my practice. Here, at the time of operation, the tip of the finger could not engage in the stricture, and the slightest touch from the bougie caused intense agony.

For those cases not unfrequently met with where ulceration of the rectum and portion of the colon exists and has continued for some length of time, colotomy, we believe, is especially indicated, not only as a means of mitigating pain and relieving the diarrhœal symptoms, but one that often cures the disease. The causes of these ulcerations are various. We believe, however, that they will be very frequently met with of venereal origin, of which we have spoken in our paper on venereal stricture of the rectum, already referred to. Again we have met with them of tubercular origin, as well as resulting from what has been termed chronic dysentery. In very many of these cases we can but palliate the disease by the means most commonly in use, and in others these resources prove of no avail. The natural result of these cases is often the formation of troublesome fistulæ either about the anus or communicating with the bladder in the male and the vagina in the female, contractions of the bowel, and perhaps perforation of the intestine into the peritoneal cavity and fatal peritonitis. Whatever way life is terminated, it is usually after a long and continued period of suffering. In

this class of cases colotomy acts by deviating the course of fecal material, the ulcerations are no longer constantly irritated by the passages, and, the source of irritation being removed, the parts are placed in a state of physiological rest, so to speak, and as a result, the parts being quieted, Nature cures the disease by her reparative process.

This is by no means theoretical reasoning, as cases abound which show just this condition of things to have taken place. Mr. Allingham, in the last edition of his work on rectal diseases (Am. edit., 1873), cites a case of this disease in a woman upon whom he did colotomy in 1867, and she continues perfectly well. Other writers have also reported most favourable cures, and we ourselves have verified this in our own practice, in a patient a year after the operation. Therefore we can in these cases not only regard colotomy as a palliative measure, but one that may actually cure the disease.

Among those cases where the bowels are obstructed from the pressure of tumours which are in themselves irremovable, or where the cause of obstruction cannot be ascertained, a number of cases favourable to this operation are reported, and which has not only palliated the symptoms, but prolonged life for some time.

To substantiate this point we have given some instances in our collection of cases, and shall cite the following two cases.

Mr. Steele, in the *Med. Times and Gaz.*, Aug. 24, 1872, says truly,

"Many cases terminate fatally of intestinal obstruction, which by timely operative interference would result favourably. A man, 52 years of age, who usually enjoyed good health, lately suffered from diarrhœa. On Jan. 6, unable to relieve his bowels he took castor oil, but without effect; next day tympanites was present, with colicky pains and fecal accumulation in the rectum, with great desire for defecation; cathartic enemata being of no use, the rectum was cleaned out and galvanism used without effect. The vital powers began to fail, but liquid food was taken and retained. On the sixth day he grew suddenly worse and colotomy was done. Flatus at once escaped, and soon afterwards feces. Localized peritonitis, inflammation of the skin, diarrhœa, gastric and intestinal irritation, etc., gave great anxiety for about four weeks. At this time the wound was well healed, but he remained weak. No passage from the rectum had since occurred, but a free discharge of thick mucus had proved troublesome. A swelling high up in the pelvis, which before the operation seemed like feces accumulated in the intestinal coils, afterwards descended and proved to be a tumour and the cause of obstruction." The patient was doing well at the time this report was made, and in conclusion Mr. S. remarks that "when the cause of obstruction is obscure and appears to be due to fecal accumulation, all legitimate means should be used to dislodge the same, but when the cause is mechanical, opiate treatment should be used, and operative means promptly resorted to. When a tumour presses upon the lower bowel, artificial anus is certainly better than a constantly forced passage, and the growth of the tumour will not be near so rapid as if compressed by feces and constantly irritated by their forced passage."

The second case was in the practice of Mr. John Hilton, and we transcribe it from his work on *Rest and Pain*. (Lecture XII., p. 294.)

"The patient was a surgeon of great intellect, who died last November. When I saw him last October twelve-month, with Dr. Jeafferson and Mr.

Hancock, he had had insuperable constipation for thirty-one days. Our joint opinion was that he could not live until the morning. There was great vomiting. We agreed that the obstruction must be somewhere in the neighbourhood of the lower part of the colon, or the higher part of the rectum. We could not detect it with the finger. We thought he would die before morning, and agreed to operate. I operated on the same evening. I made an aperture in the loins; immediately an enormous quantity of feculent matter escaped, and continued to do so for a considerable period, to the great relief of the patient. I had requested that he would not allow it to close up; however, he improved so much that he thought he might do so. The peculiarity of the case was this: that on the fourth day after the operation, from the relief of the distended condition of the colon, he passed motions by the natural anus, and continued to do so for some weeks until a gradual accumulation took place, and then a recurrence of the symptoms. I then operated on him again; the same kind of relief was afforded; and the bowels continued to be opened through the anal aperture up to July or August. He then went back to his business, and saw thirty or forty patients a day. In August last he had symptoms of pain in the hip-joint, and ultimately disease of it, from which he died on the 11th of November, more than twelve months after the first making of an artificial anus. After the first operation he used to complain of great pain in the lower angle of the wound; when I operated the second time, I put the bistoury lower down to divide the nerve which had given him so much pain, and from that time he was comparatively comfortable.

"Upon making a post-mortem examination it was found that there was no cancer. There had been a contraction of the intestine where the sigmoid flexure of the colon joins the rectum. This had produced an obstruction, and consequently a distension and over-loading of the colon. The weight of the feces had caused the colon to descend considerably below its normal position, like an inverted syphon; the feces, therefore, had to ascend, and then could not pass over the fixed point where the constriction had taken place, the weight of the colon making this part an acute angle, and so producing insuperable constipation. When the opening was made into the upper portion of the colon, the weight of feces was taken off, the accumulation in the lower part was then forced upwards by backward peristaltic action and made to pass through the rectum."

In those deplorable cases of vesico-intestinal fistula, the result of ulceration of the bowel, which at times fall to the lot of the surgeon to treat, and are beyond the reach of the ordinary operations, which in other instances are so successful, colotomy has amply proved itself to be not only the great palliative means to be adopted, but in some instances the radical cure.

The rationale of its action here is precisely similar to that we have described while advocating its use in certain cases of ulceration of the rectum and colon. Few, if any, affections are capable of entailing a greater amount of suffering and wretchedness than these lesions, especially when occurring in the male; and any operation that can at all mitigate the misery of these sufferers, should be hailed with favour both by surgeon and patient.

The earliest case in which this operation was performed and which we have found recorded, is that of Mr. Pennell, in the 33d and 35th vols. of the *Med.-Chir. Trans.* The operation was performed in November, 1849, on a man 50 years of age. The descending colon being opened after the method of Callisen, for a stricture of the sigmoid flexure of the

colon, associated with stricture of the urethra, and recto-vesical fistula, feces and air passing through the urethra in which pieces of bone, etc., were often caught. Urine passed per anum, and by the artificial anus in the first fortnight after the operation. At the time of the last note of the case, which we have seen nearly twenty-two months after the operation, the patient could perform all the functions of life with ease and comfort, and undertook the duties of manager of a very extensive and complicated banking establishment. Mr. Bryant in his *Surgery* says that a gentleman upon whom he did this operation three years ago for vesico-intestinal fistula, follows his avocation without any discomfort. Since this operation many other surgeons have fully established the efficacy of this treatment, and some of their cases are given in our table of cases embodied in this paper—indeed our Case VI. is one of this variety.

We stated that this operation had proved itself particularly applicable to these cases in the male, we were not aware until a few days ago that it had even been resorted to in the female solely for this cause. The following case is the only one in which we have ever heard of its being done in the female, and is reported in the *Med. Times and Gazette* for May 17, 1873, p. 533, by Mr. C. Heath.

This patient had twelve years before suffered from a pelvic abscess following delivery; three years later she passed from the bladder some form of membrane, and from that date continued to pass feces and flatus by the urethra. This gave rise to great pain and inconvenience which was not relieved by any treatment. It being evident that the sac of the old abscess communicated with both bladder and rectum, Mr. H. opened the colon in the left loin in Jan. 1872. The patient was immediately relieved from her sufferings and made a perfectly good recovery; continuing in good health and without any bladder symptoms up to the time of reporting the case.

In these operations the question naturally presents itself: If the disease for which colotomy is performed is eventually cured thereby, cannot the artificial anus be closed by some subsequent operation? We know that cases have occurred where nature has closed the artificial opening made by colotomy, and reasoning by analogy from those cases of artificial anus which have occurred from other causes and been cured by operation, we should be led to answer at once in the affirmative. These cases certainly seem to present fewer obstacles to an operation, there being no, or a very slight, tongue-like projection (éperon) to be removed as in those cases which have resulted from injury or disease. But what has been the experience of practice in these cases? Mr. Allingham states in his work, already referred to, that he has made attempts to close this opening, but as yet without success, and this also, he states, has been the experience of Mr. Bryant. Though knowing of no successful attempt, we should not be prevented from making the trial did a suitable case present itself.

In these cases of colotomy, patients for a time after the operation will be troubled with some fecal matter getting below the artificial opening, and giving rise to unpleasant symptoms, such as tenesmus, etc. This may at

times be relieved by enemata, either through the artificial opening or the natural passage.

Objections that have been raised against this operation may be thus briefly stated and answered.

First. The uncertainty of our diagnosis in certain cases. That this is very true we shall not dispute; but how is it with other operations that are constantly performed where our diagnosis is no more certain than it is in many cases of intestinal obstruction?

Second. The dangers of the operation. That colotomy is entirely free from danger, and that cases do not arise which may greatly embarrass and perplex the operator, we do not assert. But in the hands of a good anatomist and careful operator, the difficulties of almost every case will be overcome, and for the majority of cases the operation will be found easy, and, as far as the life of the patient is concerned, safe.

Third. The condemning a patient to be the subject of an artificial anus. This objection is one that patients would often naturally make, and it is one that surgeons, who have had but little or no experience with the artificial opening caused by colotomy, are prone to advance. The testimony, however, of very many of these patients, as well as of the surgeons who have had the largest experience with these cases, is that it really is of but comparatively little inconvenience. These patients are not troubled with a continued discharge of either flatus or feces from the artificial anus, a suitable pad being sufficient to prevent such a condition of things and allowing them to pursue their vocations, and mingle with people without disclosing their ailment. Indeed, in some cases, the bowels have been found to act as regularly and not more frequently than when this condition did not exist. An artificial anus, under the most favourable conditions, cannot help being a source of inconvenience in various ways, but when these objections are weighed in the balance against ulterior results, we cannot but think they should be found wanting.

The following eighty cases of colotomy, which we have collected and tabulated after considerable labour, comprise all those we have been able to find from 1853 to the present year. Previous to the year 1853, Mr. Cæsar H. Hawkins had collected and analyzed 44 cases in his masterly paper, which appeared in the 35th vol. of the *Trans. of the Royal Med. and Chirurg. Society of London.* In our paper, as well as that of Mr. Hawkins, it will be observed that there are given a few cases where the bowel has been opened in other places than in the lumbar region, and we believe that in certain cases we are justified in opening the small intestine.

Of these cases we find that where the sex is given there were :—

Males, 44. Females, 34.

The descending colon was opened by Amussat's method in 74 cases.

" ascending " " " " " " " 2 "

Callisen's method was adopted in 1 case.

The colon was opened in the left loin in 1 case (12).

" " " " twice in same patient in 1 case (12).

" jejunum in left lumbar region in 1 case (63).

" ilium " right " " " 1 " (6).

" cæcum " " iliac " " 1 " (57).

Where the result of the operation was known :—

Recovered, 54. Died, 23.

Thirteen of the cases that are recorded as fatal, we do not believe should be attributed to the operation, viz., cases Nos. 2, 5, 6, 8, 9, 10, 14, 18, 25, 28, 32, 38, 65.

The shortest period of survival after the operation was 16 hours.

The longest period of survival after the operation was 6 years, and the case was then doing well.

The peritoneum was stated to be wounded in 7 cases, of which 4 died; one of these, however, revealed no peritonitis at the *autopsy*, and 3 recovered.

The operation was done for vesico-intestinal fistula, with or without stricture of the rectum, in 12 cases, of which 11 recovered from the operation, and one (32) is recorded as fatal, though he evidently did not die from the operation.

The shortest period of survival after the operation was 3 weeks.

" longest " " " " " " " $2\frac{1}{2}$ years.

Where obstruction of the bowel was caused by the presence of tumours, there are 3 cases, of which 2 recovered, and the result in 1 is not stated.

The period of survival after the operation in these cases was :—

1 case was alive and doing well 15 months afterwards.

1 case was alive $4\frac{1}{2}$ years afterwards; and in 1 case it is not stated.

A perusal of these cases will show that in a large proportion of them the operation was not done till the vital powers had nearly become exhausted from long-continued suffering, and with this fact taken into consideration, the results of the operation should, we think, be regarded as encouraging.

No.	Sex.	Age.	Name of operator and where reported.	Date of operation.	Intestine opened and method of operation.	Cause of operation.
1	Female	40	T. B. Curling, Lond. Hosp. Repts., vol. ii.	Feb. 1856	Descending colon, by Amussat's method	Thirty days' obstruction from carcinomatous stricture in the rectum
2	Male	40	T. B. Curling, Lond. Hosp. Repts., vol. ii.	Sept. 1856	Descending colon, by Amussat's method	Ten days' obstruction from carcinomatous stricture in the rectum
3	Male	45	G. R. Henry, Burlington, Iowa, N. Am. Medico-Chir. Review, vol i.	Dec. 10, 1856	Descending colon, by Amussat's method	Stricture of rectum
4	Male	28	Mr. Solly, Lancet, vol. i., 1856	March 15, 1856	Descending colon, by Amussat's method	Stricture of rectum four inches above anus
5	Male	49	Mr. Erichsen, Lancet, vol. i., 1857	Nov. 19, 1856	Descending colon, by Amussat's method	Cancerous disease of rectum, had been suffering with rectal trouble for four years
6	Male	Not given	Jobert (de Lam balle), Lancet, vol. i., 1857	April, 1857	Ilium, in right lumbar region, by Amussat's method	Intestinal obstruction
7	Male	49	Mr. Solly, Lancet, vol. i., 1857	October 1, 1857	Descending colon, by Amussat's method	Stricture of rectum two inches above the anus, had existed for eighteen months, total obstruction for three days
8	Female	56	T. B. Curling, Lond. Hosp. Repts., vol ii.	Jan. 1859	Descending colon, by Amussat's method	Thirty days' obstruction from carcinomatous disease at the upper part of the rectum
9	Female	39	Sir Henry Thompson, Lancet., vol. i., 1859	March 13, 1859	Descending colon, by Amussat's method	Constipation for forty-one days. Stricture
10	Female	48	Thomas Bryant, Lancet, vol. i., 1860	October 6, 1859	Descending colon, by Amussat's method	Stricture of rectum, absolute constipation for 3 weeks
11	Male	45	N. Ward, London Hosp. Repts., vol. ii.	Aug. 1860	Descending colon, by Amussat's method	Carcinoma of rectum, and severe suffering caused by fecal discharges
12	Male	Not given	John Hilton, Guy's Hosp. Repts., vol. xiii., 1868	Nov. 15, 1860; Feb. 1861	Colon opened in the left loin, feces passed per anum, after a slough came away, wound closed, and eleven weeks afterwards bowel was opened in the left lumbar region	Stricture eight inches from anus, not cancerous, and obstruction to feces
13	Male	60	Mr. Adams, London Hosp. Repts., vol. ii.	Dec. 1861	Descending colon, by Amussat's method	Carcinomatous stricture at upper part of rectum, 18 days' obstruction
14	Female	52	Mr. Critchett, Lond. Hosp. Repts., vol. ii.	Aug. 1862	Descending colon, by Amussat's method	Carcinomatous stricture of the rectum, seventeen days' obstruction
15	Female	36	T. B. Curling, Lond. Hosp. Repts., vol. ii.	Feb. 1863	Descending colon, by Amussat's method	Painful cancerous tumour in rectum, communication with vagina, and five days' obstruction
16	Male	Not stated	Henry B. Sands, N. Y. Med. Journal, April and Dec. 1865	Dec. 26, 1864	Descending colon, by Amussat's method	Chronic intestinal obstruction following dysentery, stricture opposite promontory of the sacrum
17	Male	29	T. B. Curling, Lond. Hosp. Repts., vol. ii.	July, 1864	Descending colon, by Amussat's method	Painful cancerous stricture of rectum
18	Male	27	Mr. Durham, Lancet, vol. ii., 1864	August 23, 1864	Right colon, by Amussat's method	Cancerous constriction of ascending colon
19	Male	33	Mr. Allingham, St. Thomas's Hospital Repts., vol. i., 1870	Not given	Descending colon, by Amussat's method	Intractable stricture of rectum one and a half inches above anus
20	Male	53	T. B. Curling, Lond. Hosp. Repts., vol. ii.	April, 1865	Descending colon, by Amussat's method	Painful cancerous stricture of rectum

Result.	Period of survival.	Cause of death and remarks.
Recovered	2 months	Wound healed in five weeks. From exhaustion consequent on the disease.
Fatal	13 days	Exhaustion from persistent vomiting produced by chloroform.
Fatal	10 days	Third day after operation had severe venous hemorrhage from the wound (came from a portion of cellular tissue around the kidney though that organ was uninjured), two days elapsed before he rallied from the loss of blood; died from exhaustion.
Recovered	Not stated	Was preceded by diarrhœa and dysentery for some months before the operation, obstruction would not admit a small elastic catheter.
Fatal	3 days	Exhaustion, advanced granular degeneration of the kidneys.
Fatal	Following day	Autopsy showed that the opening had been made in the lower part of the ilium and that the knuckle of bowel was already adherent to the lips of the wound. Cause of obstruction supposed to have been due to an unusual distension of the sigmoid flexure, by means of which the bowel had turned upon itself and formed a fold, which presented an obstacle to the course of the fecal matter.
Recovered	Nearly 6 weeks	Upon hearing some bad news he fainted, then fell into a state approaching collapse in which he died November 12.
Fatal	16 hours	Peritonitis, which had set in before operation.
Fatal	3 days	Ulceration and perforation of colon above the seat of a stricture, which was at the sigmoid flexure. No appearance of its being malignant. Patient was about five months pregnant, miscarried the second night after the operation.
Fatal	13 days	Inanition, was relieved from all pain by the operation.
Recovered	8 months	Exhaustion from extension of disease.
Recovered	9 months	Exhaustion.
Recovered	2 years & a half	From exhaustion consequent on the disease.
Fatal	3 weeks	Exhaustion.
Recovered	3 months	Exhaustion consequent on disease.
Recovered	Less than 4 months	Died night of May 1, 1864. On 3d of March he again entered the N. Y. Hospital with symptoms pointing to obstruction above the artificial opening. Autopsy showed that the symptoms patient suffered from were due to tubercular peritonitis. No ulceration of mucous coat of the colon was present. Calibre of small intestines were narrowed, but nowhere was there complete obstruction. In some places they were so constricted as to give passage only to a full-sized steel sound. The large intestine, with exception of the lower part of sigmoid flexure and rectum, was but slightly thickened and its calibre was normal.
Recovered	9 months	Exhaustion consequent on the disease.
Fatal	6 days	Exhaustion from long-continued disease, was greatly relieved by the operation.
Recovered	Six years, was alive when the case was reported	There was a great tendency for a time to suppuration about the wound. On the twenty-third day after the operation a slough was seen at the deepest part of the wound, it was drawn out and measured five inches long by two inches in breadth, and was found to be a portion of the gut itself, probably some of the sigmoid flexure.
Recovered	5 weeks	Exhaustion from rapid advance of disease.

No.	Sex.	Age.	Name of operator and where reported.	Date of operation.	Intestine opened and method of operation.	Cause of operation.
21	Male	26	T. B. Curling, Lond. Hosp. Repts., vol. iv.	Feb. 14, 1865	Descending colon, by Amussat's method	Intractable stricture of rectum
22	Female	29	T. B. Curling, Lond. Hosp. Repts., vol. iv.	April 4, 1865	Descending colon, by Amussat's method	Intractable stricture and ulceration of rectum
23	Male	51	Timothy Holmes, Med.-Chir. Trans., vol. xlix; Lancet, April 14, 1866; Lancet, June 19, 1867	June 17, 1865	Descending colon, by Amussat's method	Patient suffered from symptoms of obstruction of the bowels for four years, also recto-vesical fistula
24	Male	46	Mr. Allingham, St. Thomas's Hospital Repts., vol. i., 1870	Sept. 1865	Descending colon, by Amussat's method	Obstruction of rectum from a hard solid growth which appeared to spring from the prostate. Bowels had not been moved for twenty days
25	Female	68	T. B. Curling, Trans. Lond. Path. Soc., vol. xvii., 1866	Nov. 14, 1865	Descending colon, by Amussat's method	Colloid cancer of rectum
26	Female	41	Mr. Allingham, St. Thomas's Hospital Repts., vol. i., 1870	Dec. 1865	Descending colon, by Amussat's method	Cancer of rectum
27	Male	42	Mr Pemberton, Med. Times and Gaz., July 8, 1865	Not given	Descending colon, by Amussat's method	Scirrhus of rectum and both orifices of stomach
28	Female	47	T. B. Curling, Lond. Hosp. Repts., vol. iv.	Jan. 12, 1866	Descending colon, by Amussat's method	Obstruction from carcinomatous stricture of colon
29	Male	20	T. B. Curling, Lond. Hosp. Repts., vol. iv.	Jan. 31, 1866	Descending colon, by Amussat's method	Painful cancer of rectum
30	Female	43	Mr. Allingham, St. Thomas's Hospital Repts., vol. i., 1870	March 26, 1866	Descending colon, by Amussat's method	Cancer of rectum and vagina
31	Male	54	Mr. Allingham, St. Thomas's Hospital Repts., vol. i., 1870	May, 1866	Descending colon, by Amussat's method	Cancer of rectum and ulceration into bladder
32	Male	52	C. F. Maunder, Lond. Hosp. Repts., vol. iv.	August 21, 1866	Descending colon, by Amussat's method	Cancer of rectum and recto-vesical fistula
33	Male	35	Geo C. Blackman, Cincinnati Journ. of Med., Jan. 6, 1866	Oct. 15, 1866	Descending colon, by Amussat's method	Cancer of rectum, constipation for ten days
34	Male	34	R. B. Carter, London Hosp. Repts., vol. iv.	Nov. 6, 1866	Descending colon, by Amussat's method	Cancer of rectum
35	Female	54	Mr. Allingham, St. Thomas's Hospital Repts., vol. i., 1870	Feb. 1867	Descending colon, by Amussat's method	Obstruction, supposed to be due to cancer of sigmoid flexure
36	Male	49	Thos. Bryant, Brit. and For. Med.-Chir. Rev., vol. xliii., 1869	April 27, 1867	Descending colon, by Amussat's method	Vesico-intestinal fistula
37	Female	46	Mr. Allingham, St. Thomas's Hospital Repts., vol. i., 1870	Sept. 1867	Descending colon, oblique incision, as done by Mr. Bryant	Cancer of rectum, constipation for thirty-five days
38	Male	70	Mr. Trevor, Lancet, Nov. 16, 1867	Sept. 31, 1867	Descending colon, by Amussat's method	Stricture of sigmoid flexure, not cancerous. But little had passed the bowels for a fortnight
39	Female	24	Mr. Allingham, St. Thomas's Hospital Repts., vol. i., 1870	Nov. 1867	Descending colon, oblique incision, as done by Mr. Bryant	Venereal stricture of rectum
40	Male	58	M. Verneuil, Med. Times and Gaz., September 4, 1869, Lariboisière Hosp.	Aug. 1869	Sigmoid flexure, left groin one inch above Poupart's ligament	Stricture and ulceration of rectum
41	Male	64	Mr. Allingham, St. Thomas's Hospital Repts., vol. i., 1870	Feb. 11, 1868	Descending colon, by Amussat's method	Cancer of rectum

Result.	Period of survival.	Cause of death and remarks.
Recovered	Alive Feb. 22, 1867, 2 years	Successfully relieved.
Fatal	8 days	Exhausted from persistent vomiting, probably due to chloroform.
Recovered	16 months	Was in good health and in a condition of tolerable comfort, with evidence of considerable contraction, if not complete closure, of the fistula. (*Lancet*, April 14, 1866.) Died Oct. 1866. (*Lancet*, June 19, 1867.) He died from disease in the cæcum similar to that he had in the sigmoid flexure, for which the operation was performed. About fifteen months after the operation feces again appeared in the urine. The opening from the sigmoid flexure into the bladder was not from malignant disease, but, as far as could be determined, from ordinary ulceration; the same action had taken place in the cæcum, and thus the operation from that time was rendered nugatory.
Recovered	4 years & 6 months	Exhaustion and involvement of the bladder in the disease. For quite four years was in considerable comfort.
Fatal	11 days	Exhaustion. At the time of operation her symptoms were most urgent. She rallied well from the operation and took abundance of food, went on well till the eighth day when she began to sink. All her symptoms were relieved by the operation.
Recovered	3 months & 2 weeks	Exhaustion from spread of disease; wound in loin did not heal kindly. Great relief from pain.
Fatal	Till the following day	Exhaustion.
Fatal	6 days	Exhaustion, obstruction had lasted for twelve days. Owing to a deformity of the spine the operation had to be modified.
Recovered	10 months	Exhaustion and progress of disease. Sufferings greatly relieved.
Recovered	19 months	Exhaustion. Was greatly relieved and could attend to her household duties.
Recovered	10 weeks	Exhaustion from spread of disease. In this case only temporary relief could be expected, and this was certainly realized.
Fatal	16 days	Exhaustion. Did not expect to prolong life longer; operation relieved his symptoms.
Recovered	Doing well three months after the operation	Patient was a colored man; he was relieved from pain and gained flesh.
Recovered	16 months & 5 days	Operation performed by aid of ether spray, patient sitting down and leaning over the back of a chair.
Recovered	9 weeks	Exhaustion. Had no acute pain but a low form of peritonitis set in after the operation, and she took but little nourishment. Autopsy showed considerable narrowing of the gut, together with a nearly circular ulcer one inch and an eighth in diameter, situated ten inches from the anus. It did not appear to be cancerous.
Recovered	4 months	June 29. another opening into the bladder took place, this from the small intestine, and the old symptoms came on and he died from exhaustion. The opening from the rectum that had been present had healed.
Recovered	5 months & 1 day	Exhaustion from spread of disease. During latter days of her life suffered greatly from vomiting.
Fatal	7 days	Pneumonia. Was in a wretched condition and had vomited blood before the operation.
Recovered	Was well at time of report, 3 years	Four months after operation had gained ten pounds. The ulceration of the bowel which had been present was healed. Stricture round and tight.
Fatal	30 hours	Died in a typhoid state. Autopsy showed no peritonitis, there was a slight twisting of sigmoid flexure.
Fatal	11 days	Erysipelas of wound and back.

No.	Sex.	Age.	Name of operator and where reported.	Date of operation.	Intestine opened and method of operation.	Cause of operation.
42	Male	49	Thomas Bryant, Med. Times and Gaz., Feb. 1868	April 27, 1868	Descending colon, by Amussat's method	Vesico-intestinal fistula
43	Male	59	Mr. Maunder, Brit. Med. Journ., March 6, 1869	July 10, 1868	Descending colon, by Amussat's method	Vesico-intestinal fistula
44	Male	26	Mr. Allingham, St. Thomas's Hospital Repts., vol. i., 1870	Nov. 1868	Descending colon, by Amussat's method	Stricture of rectum and ulceration
45	Female	40	Mr. Maunder, Med. Times and Gaz., Feb. 13, 1869	Feb. 2, 1869	Descending colon, by Amussat's method	Stricture of rectum, pain and difficulty in defecation
46	Female	64	Prescott Hewett, Lancet, April 24, 1869	Apr. 7, 1869	Descending colon, by Amussat's method	Obstruction from cancer of rectum
47	Male	Not stated	Mr. Paget, Lancet, June 11, 1870	June, 1869	Descending colon, by Amussat's method	Malignant disease of rectum
48	Male	64	Thomas Bryant, Trans. Clin. Soc. of London, vol. v., 1872	August, 16, 1869	Descending colon, by Amussat's method	Recto-vesical fistula
49	Female	Not stated	John Couper, Brit. Med. Journ., Nov. 20, 1869	1869	Descending colon, by Amussat's method	Stricture of rectum three and a half inches from anus, produced by an abscess of the ovary, five years' standing
50	Male	Not stated	Mr. Callender, Lancet, Nov. 27, 1869	1869	Descending colon, by Amussat's method	Cancer of rectum, sudden obstruction
51	Not stated	50 to 60	Mr. Maunder, Med. Times and Gaz., Feb. 13, 1869	..	Descending colon, by Amussat's method	Malignant stricture of rectum, complete obstruction for many days, with *vesico-intestinal fistula*
52	Female	50 to 60	Mr. Maunder, Med. Times and Gaz., Feb. 13, 1869	..	Descending colon, by Amussat's method	Non-malignant ulceration high up, with *vesico-intestinal fistula*
53	Female	68	Mr. Maunder, Med. Times and Gaz., Feb. 13, 1869	..	Descending colon, by Amussat's method	Tumour high up in rectum, producing complete obstruction for ten or twelve days
54	Male	34	G. W. Callender, Trans. Clin. Soc of London, vol. iii., 1870	Sept. 6, 1869	Descending colon, by Amussat's method	Cancerous stricture of rectum two inches above the anus, with obstruction of the bowels
55	Male	Not given	Mr. Maunder, Med. Times and Gaz., Jan. 15, 1870	Dec. 27, 1869	Descending colon, by Amussat's method	Malignant disease of rectum, partial obstruction
56	Female	Not given	Mr. Maunder, Med. Times and Gaz., Jan. 15, 1870	..	Descending colon, by Amussat's method	Painful malignant disease of rectum, with not unfrequent hemorrhages, partial obstruction

Result.	Period of survival.	Cause of death and remarks.
Recovered	4 months	Operation gave great relief, urine became clear. June 20. Abdominal pain came on in region of the bladder and some constitutional disturbance. June 25. Symptoms relieved by a sudden rush of feces into the bladder and their passage with the urine, feces were thin and evidently from the small intestine. From this time he sank and died August 27. Autopsy showed that the bladder and large and small intestine communicated with an abscess at the base of the bladder, and all signs of ulceration of the rectum, which formerly existed, had disappeared, with exception of the fistulous opening into the abscess. Left kidney disorganized and full of greenish pus, as were the ureter and bladder.
Recovered	6 weeks	Exhaustion, result of previous suffering he had endured months before coming under Mr. M.'s observation; he had suffered from diarrhœa for months and was greatly emaciated; pain intolerable, more especially on micturition. *Operation* gave the greatest possible relief from his suffering. Autopsy showed a large but simple ulcer at lower part of sigmoid flexure, and in the centre of it a small perforation communicating with the bladder. It was regretted that the operation had not been performed before the vital powers were worn out by the agony which this man had evidently endured.
Recovered	9 months	Was very much better for six or seven months, then had a severe hæmoptysis after catching cold, and died of phthisis.
Recovered	Reported a few days after operation	Wound found to have healed around the artificial opening on the third day.
Recovered	2 weeks after operation was going on most favourably	At time of operation there was stercoraceous vomiting. Colon found much contracted; complete relief by operation.
Recovered	One year, afterwards well	Mr. Paget remarks, in connection with this case, that since the feces had been no longer subjected to the influence of the rectum, morphia had completely lost its power of constipating, so the patient could enjoy this drug without becoming constipated.
Recovered	2 years & 6 months after was well	Suffered but little inconvenience from the artificial anus. No evidence of disease beyond the fistula, which gives no trouble.—*Med. Times and Gaz.*, March 16, 1872.
Fatal	40 hours	Vomiting from chloroform. Mr. Couper remarks that chloroform vomiting has been hitherto a not unfrequent cause of death after colotomy, and states: Mr Curling records a case fifteen days after the operation, and that it has also happened to Mr. Maunder. He supposes it to be due to proximity of colon and stomach to the solar plexus, both receiving nerves from this source, and the laying open of the great gut and traction upon it causes reflex irritability of the stomach. In this case the peritoneum was opened during the operation but at once closed. No peritonitis found after death.
Recovered	2 months, after was doing well	All urgent symptoms removed, and entire relief from great local pain from which he had suffered.
Recovered	A few weeks	Exhaustion.
Recovered	A few weeks	Exhaustion.
Recovered	15 months after operation was alive	Nearly twelve months after was in fair health, nothing had passed per anum since operation. Fifteen months after operation was alive.—*Med. Times and Gaz.*, Jan. 15, 1870.
Recovered	2 months, afterw'ds health was greatly improved	Pain relieved.
Recovered	5 months & 8 days	Uræmic convulsions. Depth of wound was very great. He believes he wounded the peritoneum, as something like omentum protruded, replaced this and tied the wounded peritoneum up like you tie an artery, then, by dividing the quadratus lumborum and erector spinæ muscles the colon was found. Artificial opening contracted considerably by the sprouting up of muscular tissue around the wound. This was treated successfully by the actual cautery.
Recovered	Not stated	The lower portion of the kidney embarrassed the operation.

No.	Sex.	Age.	Name of operator and where reported.	Date of operation.	Intestine opened and method of operation.	Cause of operation.
57	Male	43	L. Thomas, Gaz. des Hôpitaux, No. 70, 1869	..	Cæcum (Finé)	Occlusion of the colon, with obstruction for 33 days
58	Male	28	Dr. Thomas B. Bott, Brit. Med. Journ., Nov. 19, 1870	Feb. 21, 1870	Descending colon, by Amussat's method	Intestinal obstruction, due to an injury about the anus from the handle of his spade, which he had fallen against in the summer of 1868
59	Female	57	Thos. Bryant, Lancet, June 11, 1870	May 31, 1870	Descending colon, by Amussat's method	Cancerous stricture of rectum two inches above anus
60	Male	49	Thos. Bryant, Med. Times and Gaz., March 16, 1872	July 5, 1870	Descending colon, by Amussat's method	Recto-vesical fistula
61	Female	Not stated	Mr. Wheelhouse, Brit. Med. Journ., Nov. 12, 1870	Oct. 27, 1870	Descending colon, by Amussat's method	Obstruction of bowels for three weeks, due to presence of a uterine tumour upon the rectum
62	Female	Not stated	C. Heath, Medical Times and Gaz., March 4, 1871	Feb. 4, 1871	Descending colon, by Callisen's method	Malignant stricture of rectum, absolute obstruction had been present for a week
63	Female	39	Erskine Mason	May 8, 1871	Jejunum, by Amussat's method	Venereal stricture of rectum
64	Female	61	Erskine Mason	May 27, 1871	Descending colon, by Amussat's method	Cancer of rectum, uterus, and vagina
65	Female	56	Mr. Savory, Lancet, May 27, 1871	1871	Ascending colon, by Amussat's method	Malignant stricture eight inches above anus
66	Male	58	Mr. Savory, Lancet, May 27, 1871	1871	Descending colon, by Amussat's method	Rectum obstructed by a soft mass, on one side of which a small aperture could be felt
67	Female	37	Erskine Mason	June 12, 1871	Descending colon, by Amussat's method	Cancer of rectum
68	Female	54	Z. E. Lewis, Communicated	July 26, 1871	Descending colon, by Amussat's method	Occlusion of rectum from cancer extending from uterus
69	Female	32	Henry B. Sands, Communicated	Aug. 7, 1871	Descending colon, by Amussat's method	Cancerous stricture of rectum
70	Male	38	Thos Bryant, Med. Times and Gaz., June 15, 1872	Oct. 10, 1871	Descending colon, by Amussat's method	Stricture of rectum
71	Male	47	Mr. Howse, Medical Times and Gaz., Oct 26, 1872	Nov. 10, 1871	Descending colon, by Amussat's method	Epithelioma of rectum
72	Female	Not stated	C. Heath, Medical Times and Gaz., May 17, 1873	Jan. 1872	Descending colon, by Amussat's method	Recto-vesical fistula, result of puerperal abscess
73	Male	41	Mr. Maunder, Med. Times and Gaz., Feb. 24, 1872	Jan. 26, 1872	Descending colon, by Amussat's method	Malignant stricture of rectum
74	Female	25	Mr. Maunder, Med. Times and Gaz., Feb. 24, 1872	Jan. 31, 1872	Descending colon, by Amussat's method	Venereal stricture of rectum
75	Female	25	Mr. Hulke, Lancet, July 20, 1872	March 6, 1872	Descending colon, by Amussat's method	Venereal stricture of rectum
76	Male	Not stated	Mr. Hulke, Lancet, August 3, 1872	June 5, 1872	Descending colon, by Amussat's method	Carcinoma of the rectum
77	Male	52	Charles Steele, Med. Times and Gaz., 1872	June 6, 1872	Descending colon, by Amussat's method	Intestinal obstruction
78	Male	26	Erskine Mason	June 26, 1872	Descending colon, by Amussat's method	Intractable stricture of rectum
79	Female	42	Erskine Mason	Jan. 27, 1873	Descending colon, by Amussat's method	Cancerous stricture of rectum
80	Male	..	Erskine Mason	May 12, 1873	Descending colon, by Amussat's method	Stricture of rectum, ulceration, and recto-vesical fistula

Result.	Period of survival.	Cause of death and remarks.
Recovered	..	Had had dysentery when 15, and had frequent attacks of colic and constipation.
Recovered	8 months, after operation was well	.....
Recovered	Not stated	Operation done to relieve pain.
Recovered	1 year & 6 months after operation he was well	Had been passing urine and feces through the urethra for three years, and was much reduced in health, and most miserable from local pain. Was out four weeks after operation. Six months later reported he was getting fat and free from all pain.
Not stated	..	.....
Not stated	..	Had advised colotomy a long time before, but patient did not accept it.
Fatal	4 days	Erysipelas and uremia. See case No. I in this paper.
Recovered	3 months	See case No. II. in this paper.
Fatal	2 days	Exhaustion. Had suffered from constipation for sixteen days and from vomiting for about fifteen days. Obstruction thought to be in colon at time of operation.
Recovered	Not stated	Was discharged from St. Bartholomew's Hospital on the twenty-sixth day in a good condition.
Fatal	5 days	Septicæmia. See case III. in this paper.
Recovered	4 months & 5 days	Peritonitis from extension of disease. No autopsy obtained. Operation gave immediate relief to her symptoms and subsequent comfort so far as action of the bowels was concerned.
Recovered	About six months	Pain and exhaustion. Patient had but one fecal evacuation in ninety days preceding the operation. Suffered intense pain before the operation from fecal accumulation. The intestines were greatly distended and their outlines could be seen through the attenuated abdominal walls. Operation afforded marked temporary relief.
Recovered	..	.....
Recovered	..	Oct. 13, 1872. Was still living and expressed himself thankful for the relief afforded by the artificial opening.
Recovered	16 months	Was in good health at time of report.
Fatal	43 hours	Exhaustion. Patient was very far gone at time of operation. Operation relieved his symptoms. No autopsy obtained.
Recovered	..	Was doing well Feb. 18, 1872.
Fatal	7 days	Peritonitis. Peritoneum was opened in the operation. Autopsy showed diffuse suppuration between the oblique muscles, extending upwards on lower ribs and over front of the belly to groin, downwards along psoas and iliacus muscles, sub-peritoneal.
Recovered	..	.....
Recovered	..	.....
Recovered	Alive a year after operation	See case IV. in this paper.
Fatal	..	Pneumonia and peritonitis. See case V. in this paper.
Recovered	3 weeks	See case VI. in this paper.

In order to give a more complete *rêsumé* of the operation of colotomy, we append the following tables from Mr. Hawkins's 44 cases, which are taken from his paper.

Of these 44 cases of artificial anus, it is known that

6 died within the first 24 hours.
11 " " " " 48 "
13 " " one week.
17 " " a fortnight.
19 " " 3 weeks.
21 " " 5 weeks.

So that only 23 patients can be considered as having recovered from the operation; but as the operation in one case was performed for the cure of fistulæ in ano, in which, therefore, the dangers of protracted constipation were absent, it will be fair to state, that there were 21 deaths and 22 recoveries. But let us trace the 22 recoveries a little further; first, we find that 5 died within six months, viz.:—

1 in 2 months.
1 in 3 "
1 in 3½ "
1 in 5 "
1 in 6 " and 10 days.

Eight are either alive or are left uncertain under a year, viz.:—

1 reported for 2 months; cancer making progress.
1 " " 2½ " " of omentum or colon.
1 " " 6 "
1 " " 8 "
1 " " uncertain.
1 alive at present, 6 months.
1 " " " 7 "
1 " " " 10 "

And therefore only 9 survived for about one year, or upwards, of whom

1 died in rather less than a year.
1 " " 14 months.
1 " " 21 "
1 " at the end of 3 years.
1 was alive nearly 3 years, in 1842.
1 is now alive 14 months.
2 are now alive about 2 years.
1 lived for 17 years.

Of 43 patients, whose sex is recorded, 22 were females and 21 males; and of the 21 early deaths, 11 were females and 10 males; so that neither the frequency of the diseases for which the operation is required, nor the result of the operations, is influenced by the sex. The age of 43 patients varied from 21 to 67 or 70.

It might reasonably be expected that the nature of the disease for which the artificial anus is made, would much affect the success of the operation. These diseases were:—

In 15 cases, stricture of rectum and sigmoid flexure of colon, believed to be not cancerous.

In 3 cases, stricture of ascending or transverse colon, also believed to be non-malignant.

In 1 case, twist of colon at upper part of ascending colon.
In 1 " adhesion of rectum to uterus from inflammation.
In 1 " strangulation of ileum by a band.
In 1 " fistulæ in ano.
In 1 " adhesion of ileum and rectum to cancerous uterus.
In 17 cases, cancer of rectum and sigmoid flexure of colon.

In 1 case, cancer of sigmoid flexure of colon of omentum.
In 1 " stricture of cæcum, with scirrhus of its coats from injury.
In 2 cases, unknown.

Of the 21 cases which did not recover from the operation, the assigned causes of death were:—

In 1 case, 2 lbs. of mercury given previously, dragging the ileum into the pelvis (cancer; died in 28 days).
In 1 case, unrelieved, the obstruction being above the opening (died in 12 hours).
In 1 case, fæcal evacuations incomplete (died in 8 days).
In 5 cases, exhausted by the disease (died in 12 hours; died in 12 hours; died in 36 hours, cancer; died in 9 days. cancer; died in 17 days, cancer).
In 4 cases, structural changes produced by the disease, viz., *a*, cæcum burst, and fæcus escaped into pelvis (died in 6 days).
b, Ulceration of bowel (died in 28 hours; died in 10 days, cancer).
c, Rupture of 6 inches of peritoneal cord from distension (died in 24 hours).
In 7 cases, peritonitis.
a, Old as well as recent (1 died in 16 days, cancer).
b, From the operation, 2 (1 died in 24 hours; 1 in 28 hours).
c, Begun before the operation (1 died in 5 hours; 1 died in 2 days; 1 died in 5 days).
d, From the cancerous ulcer (died in 14 days).
In 1 case, unknown, but cancerous (died in 2 days).
In 1 case, chiefly sloughing of sacrum (died in 36 days).

The deaths of 9 patients, who recovered from the operation, have been recorded; of which—

4 cases were cancerous (died in two months of phthisis; died in 3½ months of the disease and dropsy; died in 5 months of the disease; died in 1 year of the disease).
5 cases were stricture of colon or rectum not cancerous (died in 3 months; died in 6 months; died in 14 months; died in 21 months, all from the disease; 1 died in three years, probably of the disease).

There are now living, or were alive at last report, 13 cases, of which—

4 cases were cancerous (2 months, cancer making progress; 2½ months, in good health; 2 years, still alive; 3 years nearly, cancer not making much progress).
7 cases stricture of colon, or rectum, not cancerous (6 months, in good health; 6 months, apoplexy; 4 months, after operation; 7 months, in good health; 10 months, in good health; 1 year, in good health; 2 years; 17 years).
2 cases, disease unknown (8 months, in good health; time and date uncertain).

Table of operations through the peritoneum; 17 cases.

In cæcum, 3 cases (died in 12 hours; died in 24 hours; died in 28 days).
In small intestine, 2 cases (died in 12 hours; died within two days).
In right colon, 1 case (died in 24 hours).
In transverse colon, 1 case (died in 3½ months).
In left colon, 9 cases (died in 12 hours; died in 48 hours; died in 8 days; alive now, 7 months; lived above 6 months; died in 1 year; alive now, 13 months; alive above 4 years; lived 17 years).
In both right and left colon, left external to, and right through the peritoneum, 1 case (died in 28 hours).
Total, 10 died; 7 recovered.

Table of operations external to the peritoneum, 27 cases.

In right colon, 6 cases (died in 5 days; died in 10 days; alive 2½ months; died in three months; alive 8 months; died in 3 years).
In left colon, 20 cases (died in 5 hours; died in 12 hours; died in 36 hours; died in 6 days; died in 9 days; died in 14 days; died in 16 days; died in 17 days; died in 35 days; total, 9 in 5 weeks; died in 2 months; alive 2 months, cancer; died in 5 months; alive now, six months died in 6 months; alive now,

8 months; died in 14 months; died in 21 months; alive now, 2 years; alive nearly three years); (total 11, lived above 5 months).

Uncertain which side, 5; 1 case recovered.

Thus of both sides there died within 5 weeks, 11; recovered, 16=27.

Of right colon, died 2; recovered, 4=6.

Of left colon, died, 9; recovered, 11=20.

113 WEST 44TH STREET, July, 1873.

ART. III.—*Cases of Excision of the Supra- and Infra-orbital Branches of the Trifacial, of the Perineal, External Popliteal, and Posterior Tibial Nerves, etc. etc.* By THOMAS G. MORTON, M.D., Attending Surgeon of the Pennsylvania Hospital and Wills (Ophthalmic) Hospital, etc. etc., Philadelphia. (With a wood-cut.)

THE publication of the following cases has been deferred some considerable time, in order that the results of the operations which have been performed, whether beneficial or otherwise, might be more certainly determined. In almost all instances this is desirable, but more especially is this the case after operations for neuralgias and nerve affections generally.

In several of the cases detailed some years have elapsed since the nerves were excised, and the results in those instances may be considered as probably permanent. With two exceptions, the following operations were for the relief of intense long-standing neuralgias, the other cases of nerve excisions were undertaken for blepharo and blepharo-facial spasms unaccompanied by neuralgia.

The method of reaching the infra-orbital nerve varied in each of the three cases. In the first the antrum was trephined, and the nerve removed without disturbing the orbit, but long-continued and excessive suppuration followed with some slight necrosis; the ultimate result was, however, eminently satisfactory.

In the second case the nerve was reached on the floor of the orbit; a small triangular section of bone, between the foramen and the rim of the orbit was removed with the bone forceps, the base corresponding to the orbital edge; the diverging filaments of the nerve were then collected and the main trunk with these removed, about an inch and a half within the canal; in this case the wound was well in six weeks.

In the third case, after the usual incisions and the lower edge of the orbit was reached, the eye and the adjacent soft parts were pressed upward from the orbital floor, the nerve canal was punctured far back, and the very delicate bony covering was then broken up anteriorly the full extent.

This method is the simplest, the least severe operation, and insures the most rapid recovery.

Finding some difficulty in my first case in securing completely the main nerve trunk as it lies in the canal, I devised the blunt hook shown in the wood-cut, and in the succeeding cases found it very useful—after opening the roof of the nerve canal, the hook was carried under the cord, and with traction backward and forward the roof was broken away with ease, while the nerve was quickly separated and elevated before its division. After the excision of the infra-orbital branch of the fifth pair, total facial anæsthesia followed on the excised side in each instance. In the first two cases this has completely vanished with the return of normal sensibility, showing conclusively that permanent paralysis of sensation need not be apprehended after these nerve excisions.

The line bounding the space of skin anæsthesia could be traced in each case along the median line from the root of the nose, downward to and involving half of the upper lip, thence outward from the angle of the mouth about an inch and a half, then directly upward to the external angular process of the orbit.

After the excision of the supra-orbital nerve in the case of blepharospasm there was anæsthesia for five inches above on the nasal, and three inches upward on the temporal side; sensation at the same time existed along the extreme edge of the upper eyelid, and also on its mucous surface. In this case also the natural condition of the skin, now two years since the excision, is returning, the numbness which succeeded the anæsthesia is gradually disappearing.

The results of these operations have been eminently encouraging and satisfactory. In the cases of neuralgia of the face it was not thought necessary to extend the operation, and remove the ganglion of Meckel, for the disease of the nerve seemed located in the infra-orbital, at and about its emergence on the face, while the results in these two cases, after some years, has supported this view; it is true that any trivial excitation, mental or otherwise, was sufficient in these cases to induce an attack of pain, yet repeated examination in the absence of the paroxysms showed that an exquisite degree of sensitiveness was continually present at the place of divergence of the nerve on the face.

It is worthy of note perhaps that the nerves on the left side of the face appear to have been more frequently the subject of excision for neuralgia than those of the right side.

The first case of excision of the infra-orbital nerve was for neuralgia of the most excruciating character, and which had existed for more than fifteen years; there was entire relief for a long time; in fact there has never been any pain at the original seat of suffering. The discomfort the patient now has, he describes, as "a consciousness of suffering or a tendency to it," while this is confined entirely to the lip and angle of the

mouth; the patient has been vastly benefited and so remains after a period of more than three years since the excision; possibly with the removal of the ganglion of Meckel the relief might have been entire, although in a similar case of neuralgia reported by Mussey,[1] where Carnochan's operation was performed, paroxysms of pain in the temple were experienced after the operation.

The second was a most distressing case of terrible neuralgia which had existed for upward of thirty years; more than two years and a half has elapsed since the nerve excision, and the patient continues perfectly well, and has never had the slightest return of the old malady.

The third case of excision of the infra-orbital was for blepharo-facial spasms without neuralgia, which had lasted for twenty years with a sensitive infra-orbital nerve; the patient was in a miserable condition, and was desirous to undergo any operation which held out the slightest chance for any alleviation. There has been great improvement already, with a daily lessening of the contractions of the muscles.

In the case of blepharospasm, eighteen months of constant use of the eyes (the patient being an active practical farmer) since the supra-orbital nerves were excised, has thoroughly tested the value of the operation.

The excision of the perineal nerve represents a very unusual if not unique operation, while the continued freedom from all neuralgia gives promise of continued success.

In the case of stump-neuralgia, after a Pirogoff amputation, a useful limb has been saved, upon which the patient can sustain his entire weight without any artificial appliance, by the excision, first, of the posterior tibial, and subsequently of the external popliteal nerve.

CASE I. *Excision of the trunk of the infra-orbital branch of the fifth pair of nerves, for intense neuralgia of fifteen years' duration.*—E. L., æt. 60, residing in Maine, was requested to place himself under my care, by Dr. Isaac Ray, now of this city, early in the month of April, 1870, for a very severe neuralgia of the left side of his face, for the relief of which all the usual remedies had been tried, but without any beneficial result.

Mr. E. L. had just returned from Florida, where he had been spending the winter, hoping that the warm climate might prove of service. He was enfeebled, had a bronchial catarrh, pallid countenance, and a miserable digestion. Opium and alcoholic stimulants were constantly used to insure him a certain measure of relief from the atrocious pain he was so frequently called upon to endure.

The neuralgia was principally located on the branches of the infra-orbital, and the least pressure at the place of this nerve's emergence on the face would bring about the most exquisite suffering.

Excision of the trunk of this nerve was for the first time proposed, and the operation performed early in May, 1870. The ordinary external incisions were made, the antrum was trephined, and fully an inch of the

[1] Am. Journ. Med. Sci., Oct. 1869, p. 594.

nerve removed from a point as far back as possible. Total anæsthesia of the side of the face followed, with absolute relief from the neuralgia.

Considerable suppuration ensued; the patient was much reduced by his temporary confinement; the bronchial catarrh assumed a very severe form, and a large pulmonary abscess formed, and the symptoms became alarming. With the excessive expectoration great wasting occurred; finally he improved, and remaining quite free from all neuralgia, left for his home in the East in the month of July following.

On the 16th of March, 1871, Mr. E. L.'s brother wrote me as follows:—

"After the operation the relief was *entire*, it so remained for two or three months; after that a slight uneasiness began to come on, but no *very acute* pain at any time, though he is seldom without some consciousness of suffering or such a tendency to it, that a careless motion, or any perplexity of the mind would make the presence of the enemy felt; he still holds his own, and more; at least so far as his years and so long and wretched a siege on his strongholds of life would permit. Since the operation he has had *no* pain at the original seat; what he has now is mainly at the lips and around the lower part of the face. He is confident, that, if the operation had been performed earlier and when he was not so much broken down, the cure would have been complete. He is equally confident that without the operation he would not now be living to thank you for the measure of relief afforded."

Jan. 28, 1873. "My brother would have me say that there has been no marked change in his condition that he is conscious of since he wrote you two years ago.

"You ask about the sensitiveness of the skin at present; whether paralyzed or not.

"There is no loss of sensibility now as the *result of operation.* From the first acute attack years ago, the skin has never been in exactly a healthy condition, and the "numbness" of which he has so often spoken is hardly in the skin; indeed the term itself is used for want of any other to describe an indescribable sensation.

"My brother regrets that he cannot well answer your letter with his own hand, writing is one of the things which he is least able to do with safety; and he has always found it best not to provoke a contest with his life's enemy."

CASE II. *Excision of the trunk of the infra-orbital branch of the fifth pair of nerves, for neuralgia of thirty years' duration.*—Mrs. S. S., æt. 61; native of England, was first attacked with neuralgia in 1834; the pain then was looked upon as an ordinary facial neuralgia of severe type, which continued off and on for three months. She experienced attacks during the next two years; was married in 1836, and in this year had some eight attacks of intense pain, which, however, yielded to mild opiates. Yearly attacks were experienced until 1840, when she had a terrific spell; during 1841 and '42 she was confined to bed for eighteen months, and but little benefit was experienced from powerful opiates. In the succeeding year the paroxysms of pain were so fearful that delirium came on, during which the patient would attempt the mutilation of her person. In 1843 she was brought across the Atlantic, and with the use of lactucarium and blue mass the attacks were lessened. In 1844 she removed to the State of Delaware, when the paroxysms again assumed a more violent type, and stimulants in large quantities were used, the amount being gradually increased, as it was found by this means the duration of the spells were lessened. By advice of her physician, in '53 the patient went to England, and some benefit was experienced from the voyage; during a period of six months there was comparatively a freedom from pain. In '54 she was again in bed for six months, and about this time an eminent

physician of this city was consulted, and by his direction all the teeth of the upper jaw were extracted without any good result. The neuralgia continuing, another voyage to England was made in '64, with some benefit, which lasted for several months. From '66 to the time the patient came under my care, there was almost a continuous condition of intense unremitting suffering; it was the same history over again of all these terrible neuralgic cases; for eighteen months prior to my seeing her, the average amount of laudanum taken every week was four ounces, while an ounce each day was no unusual quantity.

January 16, 1871. Mrs. S. was brought to my office, and when I first saw her, it was during an attack of pain, apparently excruciating. I at once used half a grain of morphia under the skin, and no relief appearing the same quantity was again injected in about twenty minutes. Several fearful spells followed in quick succession during the hour she remained under observation.

The pain originated on the left side of the face, apparently about the infra-orbital foramen, and was always located at this point, and thence radiated over the face and head. The nerve at this place was exquisitely sensitive, the least pressure inducing an attack. Either eating, drinking, talking, or swallowing was quite sufficient to provoke a paroxysm. Vision in the left eye was only $\frac{1}{15}$, and not capable of any improvement by glasses. In the right eye there was acquired hypermetropia $= \frac{1}{24}$, with a presbyopia $= \frac{1}{10}$.

Excision of the trunk of the infra-orbital nerve was recommended, and strangely enough had never been suggested or proposed during her thirty years of torture, and so eager was the patient for relief that the operation was at her urgent request performed the following day. After the infra-orbital foramen was exposed, the cutting forceps were applied, and that portion of the edge of the orbit above the foramen was removed, until the canal containing the nerve trunk was reached; passing the hook, p. 393, under the diverging filaments, the instrument was pressed backwards, and the roof of the nerve canal was broken up; the nerve was then excised, about an inch and a quarter being removed. Considerable suppuration ensued, and a small fragment of bone was removed. In six weeks the wound was well. The relief from pain from that time has been entire. There was total anæsthesia of the left side of the face.

August 12, 1873. The patient since the operation, now more than two and a half years, has been ever since *absolutely* free from *all* pain. There is also a complete restoration of sensation on the left side where the nerve was excised. About one year after the operation a feeling of numbness took the place of anæsthesia, this in turn was followed by a very peculiar tingling, more apparent when the skin was rubbed; following this an itching, increased by friction, preceded the return of normal sensitiveness, which latter condition has been observed for about six months. Now and then a drop or so of a clear watery secretion escapes from the left nostril, and is not noticed until it reaches the lip, and occasionally a tear may fall upon the cheek before being noticed as collecting about the eye. This is all the change the patient experiences, as compared with the other side of the face, as a result of the operation.

Vision, which was very much diminished, has since the operation been entirely restored; with a $+ \frac{1}{24}$ for distance which overcomes the hypermetropia, and a $+ \frac{1}{9}$ for reading, the patient has normal vision with both eyes.

CASE III. *Blepharo-facial spasm of more than twenty years' duration; subcutaneous division of the supra-orbital, and excision of the infra-orbital nerves.*—During the latter part of May of this year, I was consulted by Mrs. I. S., aged 56, of Philadelphia, on account of an almost continuous spasmodic contraction or jerking of all the muscles of the right side of the brow, face, and neck; the intervals of rest being only momentary. The disease first showed itself more than twenty years ago, coming on with a very trifling twitching of the muscles of the cheek; gradually this increased, and in the course of a few years the contractions were so violent that the eyelid was kept firmly closed, the angle of the mouth tensely pulled backward, and the skin of the neck drawn downward with marked elevation. This condition during the past few years has been gradually assuming a more violent form, giving great distress, but never accompanied by the least pain. Years ago all the teeth in the upper jaw were removed, from the supposition that some disease perhaps was lurking at the roots of the teeth unnoticed. This, however, did not give the least relief, and no treatment of any description has ever produced any alleviation of the malady. Her husband informed me that there was no cessation of the jerkings even during sleep, but that after a good night's rest the contractions were not so excessive for an hour or so after rising.

Firm pressure on the infra-orbital nerve produced but trifling control of the spasmodic twitchings, but no effect was evidenced by any pressure made on the supra-orbital or facial nerves; the patient's general health was and has been always excellent.

Drs. Mitchell and Hunt saw this case with me, and it was concluded that the chances for relief from an excision of the supra- and infra-orbital nerves were not at all encouraging, in fact discouraging, not only from the great length of time the disease had existed, the general involvement of the muscles of the face and neck, but also from the fact that the spasms could not be *controlled* by pressure at any point, only a slight impression being produced by the firmest pressure below the orbit, while this gave considerable pain. The case was one in which an operation (experimental it must be) was deemed justifiable, but where even a measure of relief could not be assured. The patient was very anxious for some attempt to be made, and her husband, who was a man of intelligence and wealth, was so impressed with the excellent result in the case (IV.) of blepharospasm, having expressly visited this patient at Huntingdon, Pa., that he determined to have an operation in his wife's case performed.

June 10, 1873. Assisted by Drs. Mitchell, Hunt, and others, I made the ordinary incisions for the removal of the infra-orbital nerve; after reaching the lower rim of the orbit, the soft parts were dissected upward and the floor of the cavity denuded for some distance posteriorly, the roof of the nerve canal was punctured rather more than an inch behind the orbital edge; the blunt hook was then passed under the nerve, and drawing the instrument forward the remaining portion of the roof of the canal was broken away, the nerve was divided as far back as possible, and at least an inch was removed; the supra-orbital was then divided subcutaneously in two places. Before the ether had been removed, while the sutures were being introduced, the twitching of the muscles appeared, but were apparently less severe and not so persistent.

Paralysis of sensation resulted to the same extent as in the other cases of infra-orbital nerve excisions; on the brow and scalp there was simply marked numbness.

August 7. The twitchings are still present, but there is a marked improvement; the spasms are less protracted, and the intervals of rest much longer and a daily subsidence is noticed; sometimes there will be a cessation of the twitchings for more than an hour at a time.

CASE IV. *Severe Blepharospasm of twelve years' duration; excision of both supra-orbital nerves.*—D. H., of Huntingdon, Pa., was advised by his physician, Dr. A. B. Brumbaugh, to consult me—March, 1872—about a severe nervous affection from which he had long suffered. The patient noticed about twelve or thirteen years ago a peculiar nervous twitching of his eyelids and the adjacent muscles, which gradually increased and finally became constant. The spasms of the orbicularis became so excessive and frequent that he was quite unable to attend to any business, and for some months past had been confined to the house, and when attempting to walk around or use his eyes, the lids would be so firmly closed that he had to be led about. No pain had been experienced during the twelve or thirteen years of this distressing malady. The patient had observed that firm pressure on the middle of the eyebrows or on the temples allowed him temporary relief, and he had been constantly in the habit of resorting to this method to secure momentary vision or cessation of the spasms.

The patient was a farmer, quite robust, and in every respect of sound general health; he was about fifty-eight years of age, of a rather spare frame, and never remembered having been sick. The spasms which constantly kept his eyelids firmly closed have always been unattended with the slightest pain; the orbicularis oculi, and the corrugator muscles, as well as those of the face and neck, participated; there was a violent jerking of the head, choreic in character. The marked quivering of the muscles about the mouth, face, and neck had within the last years only been observed. Firm pressure on the supra-orbital nerves controlled the spasms, while pressure on the temple or the infra-orbital nerves materially lessened, but did not control, the twitching. Light seemed to be the exciting cause, for in darkness the muscles relaxed and the patient's rest was undisturbed. With great difficulty I examined his eyes and found normal acuity of vision with a presbyopia $= \frac{1}{16}$; there was no lesion observed with the ophthalmoscope.

A solution of atropia gr. iij to the ℥j, was used in each eye morning and evening. Veratria ointment was applied over the brows, and counter-irritation behind the ears, and the artificial leech to the temples.

March 9. Wet cups were applied to the nape of the neck and temple, and room kept darkened, and 15 grains of extract conium, with 5 grains of Vallet's mass, given three times a day with a pint of porter.

13*th*. Spasms in no way lessened; can scarcely take his meals from the twitching of the face and head, and after consultation with Drs. Mitchell, Hunt, and others, I subcutaneously divided (March 14) the supra-orbital nerve on the right side, and removed more than half an inch of the nerve on the left side.

16*th*. Has had no spasms of the muscles around the left eye, but the twitching still exists on the right side; bandages firmly applied.

20*th*. Eyes exposed; total anæsthesia over the brow of the left side; on the right, sensation to some extent exists all over the supra-orbital region, which shows that the subcutaneous operation has not been complete, or that the nerve has re-united.

Since relief was not entire on the 27th, I excised the right nerve in same manner as the excision on the left side, removing rather more than half an inch. After this the cure was complete, the patient being able to bear any amount of light and having, at the same time, perfect control of the lids; on the 4th of April he left the city perfectly well.

Prof. Leidy examined the tissues and reported "of the cords removed, one is a portion of an artery, another a portion of a vein, and two others portions of nerves, and nothing observable of peculiar character."

August, 1873. Mr. H. is in perfect health, and has the entire use of his eyes. In answer to inquiries regarding the condition of the skin of the brows, Dr. Brumbaugh replied as follows:—

"There is still considerable *numbness* of the brow and forehead, extending on the right side from a point on the brow about a quarter of an inch inside the outer edge of the orbit, a little backward and upward (rounding off toward the median line), until it reaches a point about one and a half inch above the frontal prominence, extending almost directly across the head by a similar line on the left side reaching a point about a quarter of an inch outside the outer edge of the orbit. It extends on the nose to a point directly on a line with the inner 'corners of the eyes.' This feeling of *numbness*," he states, "has been gradually passing away."

CASE V. *Vaginal neuralgia of twelve years' duration; excision of the perineal nerve.*—Mrs. S. F., now a resident of this city, 42 years of age, was confined at San Francisco on June 22, 1860; labour was somewhat tedious, but the child was not above average size. The only drawback to a rapid convalescence was a pain described as vaginal, at times quite severe, which was located on the right side of the urethral opening and involved the lesser labia; all treatment during the past years had failed to give any relief. The patient's general health was uniformly good, and her menstrual functions appeared with regularity. The least pressure on the parts, whether from sitting or otherwise, produced an increase of her suffering, and all marital relations were necessarily suspended.

I saw this lady in consultation with Dr. De Young, and found great vaginal tenderness anteriorly on the right side, and some displacement of the uterus, for which pessaries had been used but discontinued from the pain induced by pressure. There had been a laceration of the perineum, and thinking that the prolapsus incident to this might be the cause of the pain, the perineum was freshened and closed up with three superficial and three deep sutures.

No abatement of the neuralgia followed this operation; a seton was then introduced above the groin, and although free suppuration was excited, the pain was in nowise lessened.

October, 1872. On examining again the vaginal walls, and especially the descending ramus of the pubes, I found that the deeper the pressure, the greater the pain, and then for the first time a firm cord was discovered, which could be rolled about under the finger, which was fully as large as, and resembled very much, a spermatic cord; this was painful in the extreme to the touch, and was recognized as the perineal nerve; several examinations were followed by the same results, and since the seat of pain was evidently in this nerve, its excision was advised. After full etherization, a deep vertical incision brought into view the cord, which was removed to the extent of an inch; it proved to be a dense hypertrophied nerve, otherwise not altered in structure; the wound closed up well in a few days.

All distress and pain vanished from the moment of operation.

January 26, 1873. Total anæsthesia has followed at and about the place of operation, extending upon the labial tissues, with a numbness of the adjacent groin surfaces; there has not been any return of pain.

August, 1873. Continues well.

CASE VI. *Neuralgia of stump following a Pirogoff amputation; excision of posterior tibial and external popliteal nerves.*—J. W., a labourer, aged 52, was admitted into the Pennsylvania Hospital on the 19th of August, 1870, with a compound fracture of the right foot; amputation by the Pirogoff method was performed immediately on his admission—an excellent recovery followed, without any undue tension of the cicatrix, and patient was discharged with one or two very small fistulous tracts which closed up eight weeks after his leaving the hospital.

Previous, however, to his discharge, neuralgia in the stump appeared, the pain at times being quite severe; the patient was able to walk and even to bear his entire weight on the stump, yet each step was accompanied by pain, referred principally to the great toe, with a sensation of the toe's being puckered up or tied in a knot; pain was also located in the little toe and slightly in each of the others.

This neuralgic condition prevented the man from engaging in any work, and in the month of August, 1871, he sought admission again for the purpose of a re-amputation. The tissues around the cicatrix in front of ankle were found very tender, the heel being in a normal condition, and apparently no bulbous condition of the nerves existed, the stump was an exceedingly perfect one, and I declined to amputate the leg, but consented to excise the posterior tibial nerve. An incision was made just above the ankle and an inch of the nerve was removed, which was found much enlarged and thickened. This materially relieved the pain in the stump, but not entirely; the cicatrix remained very sensitive. After this the tissues covering the cicatrix were divided down to the bone, with no relief.

In December following the patient re-entered the hospital, and I excised rather more than an inch of the external popliteal nerve on the edge of the biceps tendon. A rapid recovery followed this last operation, without an unpleasant symptom, and the patient was discharged quite well; he had an excellent useful stump, long enough to walk without any artificial appliance, and was able to bear, without the least discomfort, his entire weight upon it.

Since his discharge he has been free from all pain.

There is total anæsthesia of the stump and partial of the limb.

CASE VII. *Neuralgia in stump; bulbous extremities of the nerves; re-amputation.*—J. W. C., aged 24, was admitted into the Pennsylvania Hospital October 12, 1865, for intense neuralgic pains in his stump.

His right foot was shattered by a shell at the seige of Richmond, September 29, 1864, and amputation of the leg was performed on the battle-field, a few hours after the injury. On the 21st day the stump, which was doing well, began to slough, and considerable loss of skin resulted; suppuration continued for several months, and during this period pain became a prominent symptom with marked twitching of the muscles. The flap operation had been performed; the cicatrix was irregular, with a general transverse direction, and the integument was firmly attached to the ends of the bones.

Small painful nodules were found at the extremity of the stump on either side, under pressure exquisitely sensitive.

October 14. The skin was dissected up, the patient being under the influence of nitrous oxide gas, lateral oval flaps were made, and a circular division of the muscles. The anterior tibial and peroneal nerves after division were well drawn down and severed high in the sheath.

November 25. Was discharged with an excellent stump and with no return of the neuralgia.

Report of Dr. MORRIS LONGSTRETH, who examined the portions of nerves removed.

The specimen shows the integument covering the end of the stump contracted in a puckered cicatrix, and is marked with deep furrows. The integument is tightly adherent to the bones, and its connection with the muscles consists of firm bands of connective tissue. The tibia and fibula are evenly rounded, with their extremities, perhaps, unduly enlarged. The nerve trunks, viz., the posterior tibial and both branches of the peroneal, are all enlarged, and terminate in bulbous extremities which are adherent to the cicatrix by dense fibrous tissue.

Microscopic examination of the enlarged portion of the nerves showed them to be composed mainly of fibrous tissue, a few nerve fibrils only passing through them. For a short distance above the bulbous extremities the fibrous tissue in the nerve trunk was much increased.

The following are the measurements of the nerve trunks in their healthy portions and of their bulbous extremities.

The branches of the external popliteal or peroneal nerve.

I.	Anterior tibial branch:	
	Diameter of the healthy portion	$\frac{1}{8}$ inch.
	" " bulbous enlargement	$\frac{1}{4}$ to $\frac{1}{3}$ inch.
	Length " " "	$\frac{3}{4}$ inch.
II.	Musculo-cutaneous branch:	
	Diameter of the healthy portion	$\frac{1}{8}$ to $\frac{1}{4}$ inch.
	" " bulbous enlargement	$\frac{1}{3}$ inch.
	Length " " "	nearly 1 inch.
III.	Posterior tibial nerve:	
	Diameter of the healthy portion	$\frac{1}{4}$ inch.
	" " bulbous enlargement	$\frac{1}{3}$ inch.
	Length " " "	$\frac{3}{4}$ inch.

PHILADELPHIA, August, 1873.

ART. IV.—*On the Difficulties attending the Diagnosis of Aneurism, being a Contribution to Surgical Diagnosis and to Medical Jurisprudence.* By STEPHEN SMITH, M.D., Surgeon to Bellevue Hospital, New York.

IN a former number of this Journal (April, 1873) the difficulties of diagnosis of aneurism from abscess were considered and illustrated with cases. The present article is a continuation of the same general subject.

I. ANEURISM AND NON-MALIGNANT TUMOURS.—In its progressive changes an aneurism may assume all the apparent conditions of the different forms of tumour. It may be very soft and fluctuating, and be mistaken for a cyst, even when pulsation and a bruit are present; or a cyst lying over an artery may fluctuate, pulsate, and have a bruit, and be diagnosed

an aneurism and treated accordingly. Again, an aneurism may become firm and resemble a fibrous tumour, or it may have points of fluctuation like a fibro-cystic growth. The liability in diagnosis to error under these various circumstances and conditions is very great, as the records of surgery prove. The course which the surgeon should take in such cases is very important, and his position is often embarrassing. In the midst of doubt and danger he is liable to act imprudently, perhaps rashly, and the mistakes which he makes may be of the most serious nature. Under these circumstances he cannot do better than to follow the advice of one of the most eminent surgeons of the past. Boyer says:—

"In many cases it is impossible to pronounce in a positive manner, if a tumour placed over a large artery be an aneurism, or a tumour of another nature. In this doubtful case we ought to conduct ourselves as if the tumour were really an aneurism. In conforming to this rule it will no doubt happen that sometimes we shall not touch tumours the opening of which is proper and safe. But the inconveniences that may result from this, are not comparable with the danger to which the patient would be exposed by opening an aneurism instead of a tumour of another nature."

1. *Aneurism mistaken for Cystic Tumour.*—If an aneurism should have very thin walls, and should not have the ordinary signs, as pulsation, bruit, expansion, it would almost inevitably be mistaken for a cystic tumour. Nor could the error be corrected except by puncture. Such cases must necessarily be extremely rare, for it is the unconsolidated aneurism which gives pulsation as its constant and most reliable symptom. But experience proves that an aneurism with thin walls may exist without pulsation, and so closely resemble an encysted tumour as to lead to an operation for its extirpation. Though the following case was "rare and remarkable," still it deserves insertion, if for no other purpose than to demonstrate the fact that all symptoms are liable to deceive the surgeon in the diagnosis of aneurism. It was reported in the *Am. Journ. Med. Sci.* (vol. iv. p. 237, May, 1829).

A boy received a blow on the left temple; a tumour was developed which was supposed to be encysted, and extirpation was attempted. The excision was immediately followed by profuse hemorrhage, which was arrested by compression; the patient had convulsions, which soon terminated in death. The extirpated tumour was an aneurismal sac communicating with the middle meningeal artery, by an opening situated between the squamous border of the temporal and the corresponding portion of the parietal bone. The middle meningeal artery was of the size of a finger fifteen lines lower than the opening. A depression in the brain under the aneurismal dilatation contained one and a half ounces of bright blood.

2. *Cystic Tumour mistaken for Aneurism.*—If a cystic tumour should happen to be placed over an artery, it may with nicest accuracy respond to most of the tests of an aneurism. It may pulsate freely, and if it partially envelops the artery, the pulsation may be expansive. It may have a bruit sufficiently well marked to be deceptive, and it may to a certain extent recede, but not collapse when pulsation is arrested. In cases of this kind a correct diagnosis seems to be impossible without a resort to punc-

ture. And if it were a sanguineous cyst, even this test might fail to make the diagnosis positive.

Prof. Syme (*Edin. Monthly Journ.*) reported the following instructive case of this kind in which all the difficulties of diagnosis are graphically set forth :—

"A young man had a swelling in his neck, seated on the right side, occupying the upper triangular space, of an oval form, quite circumscribed, and obviously consisted of a bag containing fluid; there was distinct pulsation characteristic of aneurism; patient stated that the swelling commenced nine months ago, and had progressively enlarged without any apparent cause; when he worked hard or walked fast, it increased in size and beat strongly; varied the process of examination by placing him in different positions—by trying the effects of pressure on the artery and the tumour—and by listening to the sounds of the tumour. There was no distinct aneurismal 'bruit,' but a very strong, loud pulsation, that implied the action of the heart upon an extensive surface. After much reflection advised an operation; tied the carotid below the crossing of the omo-hyoideus; tumour immediately diminished in bulk, which was remarked even by the patient; went on well for five days, when hemorrhage took place from the wound, recurring from time to time, and finally proving fatal. On inspection a tumour was found extending from the ear to the extremity of the omo-hyoideus, and completely occupying the upper triangle of the neck. At the lower part it seemed to terminate in the sheath of the vessels, which looked like a prolongation of it downwards, but was found to be merely enveloped by the bag, which was dissected out from the coats of the vessels to which it had intimately adhered. The cyst was found to contain a fluid like thin gruel, and it possessed a tough consistence. At the posterior part, viewed internally, it displayed a sacculated or honey-comb-looking structure."

It is noticeable that in this case all the symptoms of aneurism were present except a bruit. The absence of this symptom was in reality the most important fact elicited by the examination, for cystic tumours overlying arteries are not in general sufficiently compressible to so interrupt the flow of blood in the artery as to give a distinct, or in any sense a characteristic bruit. The "strong loud pulsation that implied the action of the heart upon an extensive surface," is precisely the auscultatory sign of a cystic tumour lying in immediate contact with the artery. Mr. Syme, on the contrary, was influenced more by the expansive pulsation of the tumour, a symptom which is in general so characteristic of aneurism. The following explanatory remarks are of interest, as they prove the doubt and uncertainty which the most eminent surgeons experience in the diagnosis of aneurism :—

"I have had extensive opportunities of observing tumours of an aneurismal kind, and it was impossible for me to bestow more care in any instance than in the case just related. But the character which I have hitherto regarded as the most certain indication of aneurism may be presented by a peculiar state of things of an entirely different kind. I allude to the general expansive pulsation, especially when felt in a lateral direction. This was most distinctly recognized not only by myself but by several gentlemen well practised in the diagnosis of aneurisms, who agreed with me in the belief that an aneurism existed. Having come to this conclusion, and being requested by the patient to do what seemed proper, I had no course but to tie the artery. The low situation to which the ligature was restricted, the consequent proximity of the innominata, and the intimate adhesion of parts, no doubt led to the hemorrhage."

A case not unlike the preceding was recently treated in Bellevue Hospital. The tumour was situated in the inferior and external triangle of the neck, had distinct pulsation, but no well-defined aneurismal bruit; the diffused impulse was noticed. A consultation of surgeons decided in favour of aneurism, and the operation of ligature of the subclavian was advised. A ligature was accordingly placed around the artery, but before it was tied the cystic nature of the tumour was discovered by puncture.

Breschet (GUTHRIE, *Inj. and Dis. of Art.*) reported a case of what was regarded as an encysted tumour, which communicated with the aorta.

The subject was a child, æt. 10 years, who had several abscesses form after scarlet fever. A tumour formed on the anterior superior part of the thorax, extending to the left side of the neck. A student of medicine, believing this tumour to be an abscess, punctured it, when a jet of blood was thrown out, and it continued to flow until the tumour was emptied. A stimulating injection was used and compression resorted to by compress and bandage. On the next day the tumour refilled and pulsated; on the second day she died. On examination the sac was found to consist of two parts, one external and the other internal, the communication being through a carious hole in the bone; the internal cavity communicated by a very small opening with the interior of the aorta on its anterior face, and near the carcinomata.

The existence of an encysted tumour in this case was very doubtful; it is much more probable that there was suppuration, and that the aorta was opened by the process of ulceration consequent upon pressure.

3. *Fibro-Cystic Tumour mistaken for Aneurism.*—A tumour of a solid character, but interspersed with cysts, as in the fibro-cystic variety, may be so related to an artery, as to give the most positive evidence of being an aneurism. In these cases expansive pulsation may be present, and also an imperfect aneurismal thrill. Such tumours, in contact with an artery, resemble in many important particulars the cystic variety. They admit often of marked expansion, and being more directly compressible upon the artery, they give a more definite bruit. The following case (*Lond. Med. Times*) shows how difficult the problem of diagnosis may be to solve with the data given.

A soldier was admitted to the hospital with a swelling in the left ham as large as a goose's egg, partly compact, partly fluctuating, and distinctly pulsating on moderate pressure; came on suddenly, three weeks previously, while walking; diagnosis aneurism; compression was tried, and afterwards the femoral artery was tied. The tumour, however, continued to grow, and the patient finally died of pulmonary trouble. On examination the tumour was found to be fifteen inches long, and twenty-four in circumference, pear-shaped, lobed, and firmly adhering to the periosteum of the tibia and femur. On the surface were five sacculi containing five or six ounces of sero-sanguinolent fluid, and apparently formed by the separation of the two layers, of which a tough fibrous membrane enveloping the whole tumour was composed. The tumour itself consisted in part of a dry fibrous reticulated tissue divided by partitions of loose tissue into lobes, and separated into two chief portions by a plate of bone; and in part of a softer substance, easily broken, rose-coloured, interspersed with fibrous tissue, and containing many cells filled with serous fluid. The femur and tibia were healthy. The artery ran over the tumour, and between two of the sacs of fluid on its surface, and through these its pulsations had been so communicated as to give the sensation of the whole tumour pulsating.

It does not appear in this case that auscultation was resorted to; but there can be no doubt that a bruit might have been well marked. The proper test of such a tumour, as in the cystic variety, would be cautious exploration. In no other way could its nature have been satisfactorily determined. And yet it must be noticed that even a puncture might have misled the surgeon, for in the middle portion, where doubtless pulsation was most distinct, the exploring needle might have penetrated the artery, and possibly have obtained a jet of blood, which would have confirmed the diagnosis of aneurism. The exploration, to be of value in this instance, must be in the lateral parts of the tumour. And this rule in regard to the selection of the point of exploration of all tumours suspected to be aneurismal is important, as we thereby avoid the artery.

4. *Vascular Tumour mistaken for Aneurism.*—Vascular tumours, especially the arterial variety, often simulate aneurisms very accurately. They may pulsate expansively and have a bruit which though not characteristic of the aneurismal thrill, is yet liable to be mistaken for that of aneurism; they cease to pulsate when firm pressure is made on the proximal portion of the artery, partially collapse, and again refill when the pressure is removed; they cannot be raised from the artery any more than an aneurism; if punctured, they give issue to arterial blood. Though an erectile tumour is generally more flat and less circumscribed than an aneurismal tumour, yet this is not always the case. The following case, reported by Dr. Kerr (*Ed. Med. and Surg. Journ.*, vol. 61), is in point:—

Mrs. F., 67 years of age, had on the right side of her neck a large circumscribed tumour, pulsating strongly, and extending from the angle of the jaw to the sternum and clavicle. At the lower part of the swelling mortification had made considerable progress, and arterial blood oozed occasionally from the sloughing portion. The sloughing process had penetrated nearly an inch in depth, and this circumstance, together with the firmness of the tumour, led to the opinion that it contained a large quantity of coagula. The tumour had very much the appearance of an aortic aneurism, which it was supposed to be, a careful examination not being made for fear of a fatal hemorrhage taking place. Under treatment the bleeding ceased; the dead parts separated, and the sore nearly cicatrized; tumour temporarily diminished in size. The danger of immediate hemorrhage being past, a careful examination was made. The trunk of the carotid was traced around the outer and posterior part of the tumour, being greatly displaced by it. Pressure on the artery below its bifurcation arrested the pulsation in the tumour. The swelling had begun twenty years previous, when it appeared about the size of a pea, near the angle of the jaw after a severe fit of coughing, remaining stationary for about ten years, when it began to increase, in consequence of the patient having made such exertions as were calculated to excite the action of the vascular system, until it finally reached its present magnitude. All these facts, together with the characteristics of the tumour, left little doubt of the case being one of aneurism of the carotid commencing at the usual place or at the origin of one of the branches, this being the opinion entertained by all those who saw the case. The *bruit de soufflet* was distinctly perceived with the stethoscope, and the thrilling sensation so characteristic of aneurism was strong on the cardiac side. The swelling again began to increase, giving rise to distress from pressure on adjoining parts, and the common carotid was ligated, the wound cicatrizing rapidly; tumour diminished greatly in size, and the pulsation entirely disappeared. Nine months after the operation the patient died of pneumonia, and on

examination it was discovered that the artery was perfectly sound. The tumour seemed to be made up of cellular tissue and vessels loaded with blood, a large branch of the carotid leading into it and from which it seemed to derive its whole supply.

5. *Aneurism mistaken for Solid Tumour.*—An aneurism may become so far consolidated as to lose its characteristic features. This may occur while the tumour is small, or after it has attained to a considerable size. Pulsation may continue, but it has very nearly the character of the pulsation of a tumour situated upon an artery. The early history of the tumour is of great importance, and, if accurately given, may guide the surgeon to a correct conclusion. If, however, the early history is obscure, or unreliable, and the surgeon is compelled to rely upon his examination of the tumour itself, the diagnosis is often involved in great doubt and uncertainty.

In the following case reported by Mr. Lawrence, pulsation was not present, nor did the patient recollect that it was ever noticeable. Auscultation was not practised, and if it had been there is much doubt as to the existence of a characteristic bruit. (*Med. Chir. Trans.*, vol. 8.)

A middle-aged man was received into Saint Bartholomew's Hospital, with a large tumour filling up the whole ham, and extending on both sides of the femur towards the front of the limb. It had begun behind; had existed for five months; had grown latterly with great rapidity, and manifestly increased during a few days; had a firm fleshy feel, being a little softer at one of its anterior protuberances than in other parts; caused great pain, though it was not tender on being handled; had caused considerable œdema of the leg and foot, and had rendered the limb completely useless. The surgeons of the hospital in consultation regarded it as a large and rapidly increasing fleshy tumour, and decided that amputation of the limb was the only remedy that could be proposed. This was performed high up, having first plunged an abscess lancet into the softest part of the tumour to the whole depth of the blade, without giving issue to any fluid.

The examination of the amputated limb discovered that this tumour was a popliteal aneurism, containing an immense mass of firm bloody coagulum; not of that light-brown laminated kind, which lines old aneurismal sacs, nor of the loose and soft texture that belongs to recently clotted blood. Hence, although the sac had been freely penetrated by the abscess lancet, no part of its contents escaped.

6. *Fibrous Tumour mistaken for Aneurism.*—A fibrous tumour forming over an artery may receive pulsation and have a bruit, but neither are characteristic of well-developed aneurism. But a consolidated aneurism will sometimes give very nearly the symptoms of a solid tumour, and cannot very easily be distinguished from it. The history is then the most important feature of the case, and if that is unreliable the diagnosis must be involved in great doubt. If a fibrous tumour is small it may be raised from the artery, and thus its nature may be determined, but if larger, this test is of no value. The following case presents many of the more important features of a doubtful case. (*Lond. Lancet*, Jan. 4, 1873.)

A woman, æt. 64, accustomed to carry a heavy basket which constantly bruised the thighs, seven months since noticed a swelling size of hen's egg on inner side of left thigh; it grew slowly for four months, and then rapidly; now

extends from junction of lower and middle third of thigh to within two inches of Poupart's ligament; is ovoid in shape, smooth, and elastic, and has throughout a faint pulsation; femoral artery is felt along outside of the tumour pulsating distinctly; no change in pulsation in ham and at the ankle; pressure upon the femoral at the groin stopped all pulsation, but did not diminish the size of the tumour; the sphygmograph placed upon any part of the tumour gave marked evidence of pulsation by the free movement of its pointer; on exploration blood flowed; tumour varied in size and distinctness of pulsation from day to day; diagnosis uncertain and femoral artery was ligated as the most rational procedure in the event of the tumour being an aneurism of the profunda or a solid tumour. Pulsation was arrested, and tumour diminished slightly in size; subsequently it enlarged somewhat. Gangrene of the limb occurred subsequently, and proved fatal. The tumour was fibrous and attached to the linea aspera; the femoral artery ran over its surface.

The sphygmograph was used in this case to test pulsation, and it proved that there was pulsation in all parts of the tumour. And yet it is to be noticed that the femoral artery ran along the outside of the tumour. This instrument would seem to have misled rather than aided the surgeon, as it indicated pulsation throughout the tumour, when that pulsation was only an impulse feebly communicated to the mass from an artery lying quite external. Little or no importance seems to have been attached to the fact that the pulsation in the ham and at the ankle was unchanged.

7. *Neuroma mistaken for Aneurism.*—Closely allied to the fibrous tumour is neuroma, which may be so situated as to receive the impulse of an artery and be mistaken for an aneurism. In the case reported by Mr. Earle (*Lond. Med. Gaz.*, vol. 16) the most careful examinations were made, and that, too, repeatedly by surgeons of St. Bartholomew's Hospital in consultation, and yet the mistake was made of ligating the subclavian artery for a neuroma of an axillary nerve. The error was not discovered until the patient's death from another disease five years after the operation, and when he was supposed to have recovered from the aneurism. The case has many points of interest worthy of special notice.

"T. B., æt. 54, iron-plate worker, had a pulsating tumour situated immediately below the left clavicle; had been gradually increasing ten months; size of half an orange; lower part hard and without pulsation; upper part softer and pulsation distinct; no additional evidence afforded by the stethoscope; supposed to be aneurism of the subclavian artery where it passes the clavicle; pulsation in the humeral and radial arteries as strong as on the healthy side; this circumstance and the firmness of the greater part of the tumour led to the hope that a spontaneous cure by obliteration of the aneurismal pouch might be effected without arresting the current in the direct course of the artery; treatment consisted in low diet, saline medicines, moderate and repeated bleedings, and applications of pounded ice; tumour remained stationary as to size, and its pulsation diminished; pulsation of the artery beyond the tumour remained free and undiminished; at a consultation all the circumstances were discussed, particularly the undiminished strength of the pulsation of the artery beyond the tumour; the prevailing opinion was that the force of the circulation below was a proof of the free ingress of blood into the pouch, which of course made the probability of a spontaneous cure very slight; the patient was now in better condition for the operation, and delay might possibly cause the tumour to increase, raising more the clavicle, and thus rendering the operation more difficult; it was decided to operate. On the third day following, the tumour seemed to be increasing in a direction beneath the clavicle, and on the next day the operation was performed. On introducing the

finger into the wound, the aneurismal tumour was felt pulsating, and the clavicle was considerably raised from the first rib. The bulk of the tumour was very slightly diminished after the operation, and the contents of the sac felt very firm. The patient's health continued very precarious for some time, but after his removal from the hospital it improved and his wound gradually closed; but he continued to have pain in the tumour, inflammation around it took place and finally suppuration, he returning to the hospital after a few weeks' absence to have the abscess opened. A large quantity of unhealthy pus was evacuated; after some time the opening was enlarged, and a quantity of thick matter, supposed to be laminated coagula, came away, after which the abscess healed, leaving hardly a perceptible swelling beneath the clavicle; the tumour also subsided. He returned to work, the pulsation at both wrists being almost equal in strength; complained of a sense of coldness and numbness down the left arm. From 1830 to 1835 he was under my occasional observation, and finally he was re-admitted with general dropsy and great exhaustion, under which he died on the second of July of the latter year. At the autopsy a tumour was found an inch below the clavicle, oblong in shape, two inches in length by one and a half in width, lying upon and in the direction of the axillary plexus of nerves. The axillary artery was firmly united to one side by dense cellular tissue, the other side being intimately connected with the axillary nerves. The tumour consisted of grayish dense substance divided by white lines extending through it in various directions. A large nerve of the axillary plexus was attached to the upper, and another similar nerve to the lower end of the tumour, both being split into filaments at either end, which extended into the interior and on the surface of the tumour. The subclavian artery had been ligated upon the first rib."

In reviewing this case Mr. Earle remarks that it "furnishes powerful negative evidence in favour of auscultation, as certainly the usual sound of aneurism was absent." It is true that the absence of auscultatory signs was in itself evidence of the non-existence of aneurism, but by no means conclusive. As has been seen in many other cases, auscultation yields very equivocal evidence of the existence of aneurism. There may be no bruit whatever detectable when aneurism is present,[1] and there may be a well-defined bruit closely approximating the aneurismal without the presence of aneurism, or finally, there may be every shade of bruit with or without aneurism, except perhaps the so-called aneurismal thrill when acutely marked in aneurism.

Another symptom in this case which received the attention of the consultation was the undiminished pulsation of the arteries beyond the tumour. Ordinarily this would be regarded as one of the more important signs of the non-aneurismal character of the tumour. In this case, however, it was construed as evidence of the free entrance of blood into the cavity of the aneurism, and unfavourably to a spontaneous cure. This opinion was evidently erroneous, for the volume of pulsation of the arteries beyond

[1] "Such was the case in a woman under Mr. Vincent's care at St. Bartholomew's Hospital, in whom an aneurism followed the occurrence of a longitudinal rent in the posterior tibial artery, on its anterior face. The sac being formed at the posterior part of the artery, the stream of blood seemed to enter it indirectly. Hence probably the absence of pulsation. Nor was there any bruit. The diagnosis was only made after a long course of treatment, by an exploratory incision, when amputation became immediately necessary."—*Holmes' System of Surgery*, vol. iii.

the tumour diminishes in proportion to the freedom with which the current of blood enters the aneurism. No variation in the pulse of the affected limb would indicate that the current was uninterrupted, and would lead to the conclusion either that no aneurism existed, or if it existed that the cavity was closed. And yet, as will appear in the course of this paper, aneurisms may exist, and the distal arteries pulsate with undiminished force.

We shall in a future paper consider the diagnosis of aneurisms from malignant growths, from pulsating tumours of bone, from enlarged thyroid, etc. etc.

ART. V.—*A Contribution to the Anatomy of the Jugular Foramen.* By THOMAS DWIGHT, Jr., M.D., of Boston, Professor of Anatomy at the Medical School of Maine. (With three wood-cuts.)

THE objects of this paper are: 1st, to call attention to the great and, as far as the writer knows, undescribed variations of the jugular fossa, that part of the temporal bone which, together with the occipital, forms the *foramen lacerum posterius;* 2d, to consider the differences which the fossa, the foramen, and the neighbouring foramina present on the two sides of the same skull; and, 3d, the effect of these differences on the cranial circulation.

A. The size and shape of the jugular foramen depend to a certain extent on the formation of the jugular eminence and notch of the occipital bone, but far more on that of the notch of the temporal bone, while the lower aspect of the opening, and the jugular fossa for the enlargement of the internal jugular vein, depend almost entirely on the latter. The fossa is liable to great variations, and presents all the appearances intermediate between two extreme types, one of which is very common, and is the form usually described in text-books, while the other, though far rarer, is not rare enough to be called abnormal. It is astonishing that no mention of this latter form should be found in any of the modern systematic treatises on anatomy. In the seventh edition of Quain, we are told that "a smooth, rounded, and deep depression, the *jugular fossa*, lies internal to the styloid process, it is close to the posterior margin of the bone, and completes, with the jugular notch of the occipital bone, the foramen lacerum posterius." In many cases it is neither smooth, rounded, nor deep. There is no satisfactory description of it in Sappey, Cruveilhier, nor Luschka, nor, what is more surprising, in the admirable description of the bone in Henle's *Knochenlehre.*

The jugular fossa is situated on the inferior surface of the petrous portion, or, more correctly according to Henle, on the posterior external

surface.[1] The most frequent form consists of a thimble-shaped depression pointing upward, outward, and a little backward. (Fig. 1, *a*.) The rim of the thimble is usually well-defined, except behind, where it is lost in the border of a rough surface (*b*) which joins the end of the jugular eminence of the occiput; but sometimes the rim is wanting on the outer side so that the lower part of the wall of the fossa is formed on that side by the tympanic plate. A blunt crest (*c*)[2] separates the fossa from the *aqueductus cochleæ* and runs into the *processus infrajugularis* (*d*), a prominence on the posterior border of the petrous portion which assists to divide the foramen into an anterior and a posterior portion for the passage of the nerves and veins respectively.

Fig. 1.

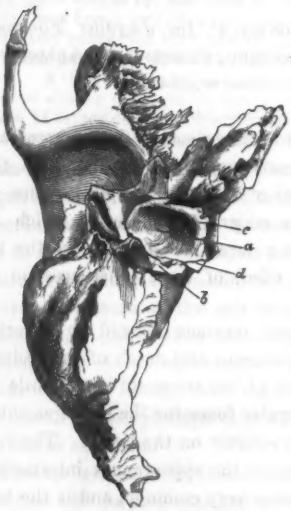


Fig. 2.

From this slightly amplified description of the most common form we pass to that of the least frequent, which is extremely puzzling to the student if he follows, as he should, the book on the bone. There is no thimble-shaped depression whatever, but merely an entering angle formed by two rough surfaces which meet in a groove running forward and outward. The posterior of these surfaces (Fig. 2, *b*) is for the junction with the jugular eminence, and is much larger than in the other type. The anterior one (*a*), nearly vertical, and slightly and irregularly concave,

[1] When the bone is *in situ* the highest part of the petrous portion is the ridge separating the surfaces commonly called superior and internal, excepting the point where the former surface is forced up by the superior semicircular canal.

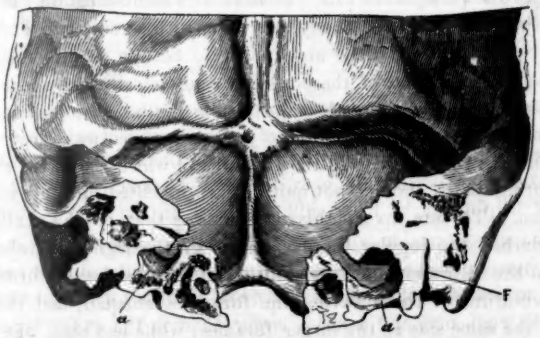
[2] Henle, Knochenlehre, s. 158.

represents the diminutive fossa. The inner and lower angle of the surface is prolonged into the infrajugular process (*d*), and its anterior edge (*c*) is very thick, taking the place of the blunt crest behind the aqueduct. In this form, one might imagine that the occipital surface behind, and the crest in front, had become enlarged at the expense of the fossa, of which nothing but the anterior wall remains. When the bones are joined to the occipital the effect is very striking; the foramen is reduced to a narrow slit, partially divided into a larger anterior and a smaller posterior one, by the very prominent infrajugular process.

All other forms appear to be intermediate; we may consider them as successively greater deviations from the former type. In the first grades the inner edge of the thimble disappears; then it becomes more shallow, till finally it is a mere concavity sloping outward and forward. As the fossa grows less, the anterior and posterior walls thicken as just described. It is the posterior or venous part of the foramen which suffers, the anterior undergoes little change.

Apart from variations in form, the foramen and the fossa may vary greatly in size. The depth and diameter of the fossa are equally uncertain. It is not too much to say that in two skulls of equal size the fossæ of one may have four times the capacity of those of the other, though made on the same plan. The foramina may vary as much as the fossæ and independently of them, though, as a rule, the size of the one is in direct ratio to that of the other. Both foramina of a skull may be decidedly above or below the average, but, as the next part shows, one is usually larger than the other.

Fig. 3.



B. The difference between the foramina of the two sides does not result solely from the quasi-accidental asymmetry of corresponding parts, but, as a rule, from a peculiar arrangement of the venous channels. The difference of the relations is well shown by vertical sections. Fig. 3 represents such a section through the head of a young subject, in which

there is a striking disparity between the foramina. The cut is made rather obliquely; on the right it is $\frac{1}{16}$th of an inch in front of the stylo-mastoid foramen, while on the left it strikes the posterior wall of the canal (f) leading to it, yet such is the asymmetry of the skull, that while on the left the jugular foramen (a) is fully opened, the section on the right is just behind its orifice, and shows the lateral sinus (a') turning over the jugular eminence.

To ascertain whether there is any fixed relation between the size of the opening, the shape of the fossa, and the size of the anterior and posterior condyloid foramina, the writer has examined very carefully the skulls in the museum of the Boston Society of Natural History, and those in the private collection of his friend Dr. J. Collins Warren. After the rejection of some more or less mutilated specimens there remained 159 ancient and modern, representing races from nearly all quarters of the globe. The first step was to study the variations in size of the jugular foramina of the two sides of the same skull. (The posterior or venous portion is, as already intimated, the important part as influencing the size of the opening.) This foramen was larger on the right in 104 cases, on the left in 38, and those of the two sides were equal in 17. Of the 142 cases in which one foramen was larger than the other, the fossa was more capacious on the same side as the larger foramen in 93 cases, on the opposite side in 19, and those of the two sides were equal in 30. In the same 142 skulls the posterior condyloid foramen was larger on the same side as the larger jugular foramen in 53, on the other side in 37, and they were equal or absent in 52.[1] In the same series the anterior condyloid foramen was larger on the same side as the jugular in 16 skulls, on the other in 11, and the two were equal in 115. It should be mentioned that the differences between the anterior condyloids were, with one or two exceptions, extremely slight. There does not appear to be any definite relation between their size and that of the posterior condyloids. The above figures are obtained by adding together the results of the examination of the two main classes: those in which the jugular foramen was larger on the right and left respectively. In the 17 skulls in which they were even, the neighbouring parts, though not quite alike, presented nothing worthy of description. To sum up roughly, we may say that of 159 skulls about two-thirds had the jugular foramen larger on the right side, about one-fourth on the left, and about one-ninth had the two equal; further, that about two-thirds of those having the foramina unequal, had the larger fossa on the same side as the larger foramen, while less than one-seventh of them had it on the opposite side; and lastly, that the posterior (and in a less degree the anterior) condyloid foramen was much more frequently larger on the same side as the jugular foramen than on the other.

[1] When but one posterior condyloid was present it was held to be larger than its fellow.

C. The application of what precedes to the cranial circulation is very simple. It is clear that, as a rule, the greater part of the blood tends to seek an exit on one side. It has long been known that one jugular vein is commonly larger than the other, and it is shown that the jugular fossa of that side is generally shaped so as to lodge a larger dilatation.

Fig. 3 shows the correspondence in size of the lateral sinus, the foramen, and the fossa of the same side. It appears also that the condyloid foramina, both of which transmit veins, show no compensatory disposition, but on the contrary are usually larger on the same side as the larger jugular foramen.

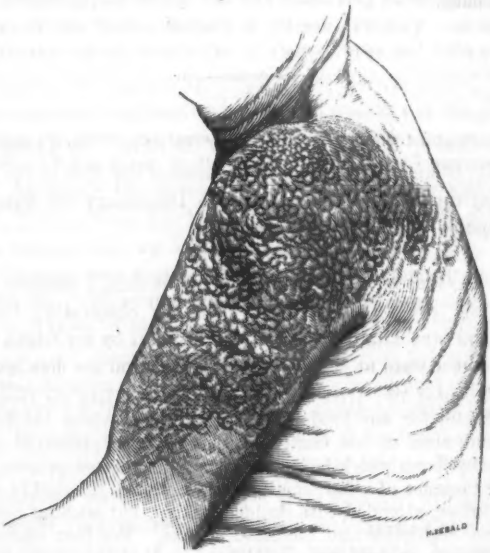
ART. VI.—*Case of Painful Neuroma of the Skin.* By LOUIS A. DUHRING, M.D., Clinical Lecturer upon Diseases of the Skin in the University of Pennsylvania, and Physician to the Dispensary for Skin Diseases, Philadelphia. (With a wood-cut.)

UNDER the name of painful neuroma of the skin, I propose to describe the following case which has been under my observation for the past six years, and was kindly placed at my disposal by my friend Dr. F. F. Maury, in whose ward at the Philadelphia Hospital the man is at present.

David W., aged 70; Irish, boiler-maker, but of late his trouble has incapacitated him for any kind of labour. His previous health has been excellent and none of his family or relatives ever presented any disease similar to that from which he is suffering. About ten years ago he first noticed the presence of a few, small, round nodules, situated in the skin of the left shoulder, attended with decided itching, but without pain. These nodules soon multiplied and increased in size. For four years they continued to appear in numbers, and by the end of this time the arm and shoulder were well studded with them. For the past five years their increase in number has been slower, but new ones have continued to appear up to the present time. Some of the older nodules have grown somewhat in size during the past five years. He is quite positive that it was not until three years after the first elevations were noticed, that there was any pain in or about them. Such are the important points in connection with the early history of this case. Since I first saw the patient, six years ago, there has been but little change in the appearance of the growth, with the exception that new scattered tubercles have developed at various points.

The disease is now characterized by the presence of numerous small, rounded, hard nodules, occupying the left scapular region, shoulder, and outer surface of the arm, as far down as the elbow, as is seen in the accompanying illustration. They are incorporated with the skin and subcutaneous tissue; vary in size from that of a pin's head to that of a large pea, and at certain points are situated closely together. They are elevated from one to four or five lines above the level of the surrounding healthy skin, and present a marked tubercular, knotty appearance. They are

firmly seated in the skin, and are in no instance pedicellated. Over the shoulder and arm, at the insertion of the deltoid muscle, the tubercles are closely packed together, and the intervening skin, though not tuberculated, is involved with the same new growth. At this point it presents a solid mass of hard tubercular tissue. The surface is rough, and nodular; about the scapular region as well as further down the arm, the nodules are more scattered and isolated, the skin between them being perfectly normal. The tubercles are scattered in irregular form and without definite arrangement. They do not occupy any particular nerve tract. The affected side of the body, including the arm,



corresponds in size with the healthy side. The diseased skin varies in color according to locality. Where the affection is most marked, about the shoulder, the tubercles are of purplish pink color, with a somewhat mottled appearance. Where they are isolated, their color is pinkish and lighter in shade, being more of the hue of the normal skin. But the color of the whole surface is subject to great variations, according to the position of the limb, external applications of one kind or another, as cold or heat, and the subjective symptoms. The tubercles are here and there covered with fine yellowish-white laminated scales, consisting of imperfectly formed epidermis, which are firmly attached and cast themselves off only slowly. These scales give to some of the older tubercles a whitish, glistening appearance. There are no tubercles or signs of the growth on the under surface of the arm, from the axilla down to the elbow. The skin here is smooth and normal in every respect, and can be freely handled without producing any uneasiness or pain. The tubercular mass about the shoulder and arm is warmer to the touch than other portions of the arm. During a paroxysm the part is quite hot, and remains so for some time after the

pain has subsided. The nodules are all more or less painful when touched or pressed upon. There are no bloodvessels visible upon the surface of either the central mass or any of the distinct tubercles.

The original starting point of the affection appears to have been at or about the insertion of the deltoid muscle, for here the tissues are now thickest and the pain most severe. During a paroxysm of pain the tubercles and skin involved change color rapidly, passing through various shades until they become purplish and even livid at times. As the paroxysm is ushered in and while it is at its acme, the parts are seized with a quiver, which extends over the whole arm and is paroxysmal, occurring every few seconds during the height of the attack.

Intense pain, of a paroxysmal nature, constitutes the distressing feature of the disease. This was developed gradually, first showing itself about three years after the appearance of any external manifestation, and soon increased in severity, keeping pace with the development of the disease. For the last five or six years the pain and paroxysms have been about the same in degree and character. The pain during a paroxysm is excruciatingly severe, and from my repeated observations of these attacks, I doubt if any words can fully express the amount or character of the suffering the patient undergoes. As the pain comes on he endeavours to support the affected arm with the other hand, pressing it towards the body. But he dares scarcely touch it, for so sensitive is it now that even the breath blown upon the surface excites additional pain. At one time he endures the paroxysm in the standing position, or he seats himself upon a chair or the floor, and remains in a cramped condition, unmindful of all surroundings, until the extreme pain ceases. Frequently his sufferings are so severe that he is unable to contain himself, and he cries out so vehemently and piteously that he can be heard all over the building. Frequently I have seen him roll over the floor in agony, unable to control himself.

This very intense suffering remains at its height but for a short time, from ten minutes to a half hour, when signs of abatement are noticed, and in an hour or two the attack subsides. In attempting to describe the nature of the pain, beyond the fact that it is indescribably painful, we can learn but little concerning it. He has frequently, however, compared the sensation to a stream of ice-cold water running down the arm, together with the pain of burning and pricking.

The paroxysms vary in duration and in frequency of occurrence. They also vary in intensity, according to the immediate cause which has occasioned them. When slight an attack lasts perhaps ten minutes, or if severe an hour. If quiet and undisturbed, and with the part protected, there may be but one or two paroxysms in the course of the day, but if the patient becomes worried or excited from any cause, or if the arm be exposed to violence, the attacks are much more frequent and correspondingly violent. Exposure to cold invariably causes pain, while rough handling or pressure of any kind is inevitably followed by severe paroxysms. Any movement of the arm, as necessarily occurs when his garments are changed, always gives rise to an attack of more or less severity. The lightest draught of wind is all-sufficient to produce a paroxysm. The pain is influenced very much by the condition of the weather. Of this fact the patient assures me positively, and the statement is confirmed by the nurses and his fellow-patients who have him continually under observation. He is always much worse the day preceding a storm or a great change in the weather. He is always worse and suffers more during a rainy or snowy season. He is decidedly better in summer than winter.

The area of pain is much larger at the present time than it was a few years ago, but this is accounted for by the development of new tubercles in tissue previously healthy. The pain in a severe paroxysm shoots rapidly down the arm, even as far as the knuckles; it also spreads itself over the pectoral region, and up the side of the neck and head. The patient complains of a buzzing, singing sensation in the head, which he affirms is almost constant and of late has been increasing in intensity. A neuralgic pain is also present in the head at times, which is liable to exacerbations during a paroxysm. His general health and condition are remarkably good considering his sufferings. His appetite is not wanting, and when free from a paroxysm he is able to rest and sleep quite well. The paroxysms, however, frequently awake him out of a comfortable sleep.

Before entering the Philadelphia Hospital, with a view to obtain alleviation of pain, he submitted to having the arm and shoulder thoroughly blistered on several occasions, which proceeding, he thinks, gave him some relief for a period of six weeks. But his memory is rather vague concerning the past, and it is to be considered that this statement cannot be accepted without reserve. Since his admission to the hospital various means and remedies for his relief have been tried, but without the desired result. Hypodermic injections of morphia have frequently been administered during the paroxysms, with a view of checking their violence, but even with large doses the end has scarcely been attained. The relief afforded by this means is not material, and the after-effects upon his head are so unpleasant that he prefers to endure the pain. Steam baths to the part have also been employed, but with little relief. Direct dry heat undoubtedly affords more ease than any other application that has been made, and he is never so comfortable and free from pain as when sitting close to a hot stove or fire with the arm exposed to the heat. When a paroxysm comes on he at once seeks the fire and there remains until the pain has abated.

With the hope of ascertaining the nature of the disease, the man consented to the excision of several of the tubercles. Three were selected in different regions as being most characteristic of the affection. Two of these were situated in the central mass, about the shoulder, and the third was a well marked, comparatively recent, isolated tumor, seated in the skin of the back about one inch to the right of the spinal column. The patient was etherized, and the growth removed, care being taken to include a considerable portion of the subcutaneous tissue with the incision. Unusually severe pain, continuing for several days, followed the operation, due in a great measure to the state of excitability which the whole proceeding occasioned, excitement of mind being always followed by an aggravation of the sufferings. Very little hemorrhage occurred. The wounds were very slow to cicatrize. The nodules directly after removal were of the size of large peas, irregularly rounded and defined; firm and quite hard to the touch and of a dirty white color. Cutting one of them open, vertically, the internal surface presented a dull white color affording scarcely any blood or fluid upon pressure. The cut surface appeared homogeneous and solid throughout to the naked eye. The growths were not found to possess any filamentous attachments of any kind. The specimens were immediately placed in alcohol and a solution of bichromate of potassa preparatory to microscopical examination. After carefully imbedding small vertically cut pieces in wax, thin sections were made with a razor and examined with glycerin. Some of the specimens were stained with a chloride of gold solution

of one-half per cent. strength, while others were coloured with a carmine solution. Many sections were submitted to close examination, with the following result. The epidermis was irregular and uneven in structure, and here and there completely broken down. The rete was imperfectly developed in certain of the sections, at one point showing normal growth and arrangement, while in other specimens there appeared an abnormal distribution of the younger cells. A singular concentric formation of the cells of the rete was here and there noticed, resembling the globular arrangement of epithelioma, but this condition was not universal, occurring only in certain sections. The papillary layer was irregulary developed. The papillæ were here and there greatly hypertrophied. The corium was abnormally infiltrated with new connective tissue growth which was firm in structure. The tissues beneath and the mass of the specimen consisted of a solid, resistant looking connective tissue, irregularly developed and uneven in arrangement. The bulk of the tissue was old in appearance and well felted together, the new cell elements being entirely wanting. The connective tissue fibrils were closely packed in places forming wave-like bands. There were also numerous free fibrils of elastic tissue scattered here and there through the specimens, particularly in the deeper portions of the tubercle, where in places they formed a delicate network. Here and there filaments appeared isolated, resembling very much fine nerve fibres. But among the many sections examined with the utmost care, it was impossible to find either nerve trunks or branches.

This case, I venture to remark, is without a parallel in medical literature. After careful research I have been able to find only two cases which bear any likeness to it, and these, it will be observed, present symptoms quite different from those in our case.

In plate VII. of Dr. Smith's atlas of neuroma will be found the portrait of a man whose disease bears a striking resemblance to that under our care, but upon investigation it will be noticed that the affection differs in important particulars, and that, though at a glance it appears to be the same form of disease, it in reality is not.

The case is that of a farmer named Michael Lawlor, æt. 32, admitted to the Whitworth Hospital, under the care of Dr. Corrigan, with symptoms of gastro-enteritis. During the investigation of the case, the abdomen and body were found to be studded with numerous small tumours situated *beneath* the integument. Many of them were about the size of peas, movable, and of firm consistence. But some were larger, and one existed about the tuberosity of the ischium, which was the size of a swan's egg. It was slightly movable in the transverse direction and equally solid throughout. The integuments were healthy, and could be moved freely over the surface of the tumour, pressure upon which caused pain. The sensation was of numbness rather than of pain, the patient stating that the limb felt as if it were asleep. The large tumour was the first to which the notice of the patient had been attracted and was of the size of a gooseberry when first observed. Its appearance was preceded by a sensation in the part "like the trickling or dropping of cold water down the limb."

Another tumour, larger than that just described, of whose existence the patient was not aware, was found placed deep in the hypogastrium, and another, the size of a walnut, situated upon one of the branches of the right anterior crural nerve. These three tumors were painful when pressed upon, the others in great number over the body were the source of no uneasiness. They were all movable from side to side, were oval in form, and of solid consistence. The

patient became very much emaciated from the effects of the gastro-enteritis, and in this condition it was evident that the tumours were seated along the course of nerves. The patient died, and the autopsy revealed these tumours to be seated upon the nerves in great numbers. Indeed the examination disclosed the fact that all the nerves of the body were more or less affected with these neuromatous tumours, more than two thousand distinct growths having been discovered.

This is perhaps the most interesting example of general multiple neuroma upon record, but from a review of the prominent features it is manifest that the disease cannot be considered as identical with that of David W. The subjective symptoms here are altogether different, as well as the form of growth itself, which must be regarded as a typical instance of the ordinary multiple neuromatous tumour. The corium, so markedly affected in our case, is in no way involved, the tumours being situated deep beneath the skin.

The other case to which I have referred as being somewhat similar is reported by Vallender and quoted by Virchow. But the symptoms in this instance likewise are very different, a few of the larger tumours here being alone painful and these only upon pressure.

But although the case of David W. is unique as regards development, the general features are of such a character as to admit of no hesitation in deciding to which class of pathological formations it belongs. Without doubt to the neuromata, for here only will the affection find its position in pathology. Viewing the case on the other hand, from a clinical standpoint, with no other group of morbid growths is it possible to account for the violent symptoms accompanying the disease.

Reported examples of general multiple neuroma, where the tumours occur in numbers, are rare, Virchow estimating that probably not more than thirty cases are upon record. They are usually free from the pain which is so constant with the single neuroma, a fact very difficult to account for, but which is mentioned in connection with most of the reported cases, as for instance in the case of Michael Lawlor. We find the symptoms in our case, however, completely at variance with this usually accepted statement, pain not only being present, but also most violent neuralgic paroxysms, exactly like those described in connection with the painful subcutaneous tubercle. Were these symptoms alone considered, the case might well be grouped with this latter tumour, so minutely do they correspond. But there are important points of difference between our case and the painful tubercle. This little tumour, as described by Wood, Descot, Dupuytren, and Paget, is never a multiple growth, but a solitary tumour, rarely ever more than one existing upon the same patient. Moreover it is always spoken of as being situated *beneath* the subcutaneous tissue scarcely perceptible to the eye. It is also always found to be freely movable under the skin, and never in any way attached to it or involved with it. Additional points of difference there are which preclude the two forms of disease from being considered identical.

The writer is indebted to the following works which have been of invaluable assistance in the study of the case under consideration: Virchow, *Die Krankhaften Geschwulste*, Berlin, 1863; Descot, *Affections Locales des Nerfs*, Paris, 1825; W. Wood, *Edinburgh Med. and Surg. Journ.*, 1812; *Trans. of Med.-Chir. Soc. of Edinburgh*, 1829; R. W. Smith, *A Treatise on the Pathology, Diagnosis, and Treatment of Neuroma*, Dublin, 1849; Craigie, *Elements of General and Pathological Anatomy*, 1848; Miller, *Principles of Surgery*, 1844; Wedl, *Pathological Histology*, Syd. Soc. translation, London, 1855; Dupuytren, *Leçons Orales de Clinique Chirurgicale*, Paris, 1832; Paget, *Lectures on Surgical Pathology*, London, 1870.

ART. VII.—*Remarks on Interstitial or Syphilitic Keratitis, with Report of Cases.* By SAMUEL THEOBALD, M.D., Ophthalmic and Aural Surgeon of the Eye and Ear Dispensary, Baltimore.

THE correctness of the views first advanced by Mr. Jonathan Hutchinson, of London, as to the syphilitic nature of interstitial keratitis, is still questioned, and, in some quarters, even stoutly denied. If I could have entertained any such doubts, after eight months' constant attendance upon Mr. Hutchinson's clinic at Moorfields Ophthalmic Hospital, London, during which time I frequently saw him demonstrate the connection, which he has shown to exist, between this form of ophthalmia and inherited syphilis, my experience, since returning home, would certainly have dispelled them.

Mr. Hutchinson remarks that this disease, as well as the notched and pegged teeth that so often accompany it, and which he has also shown to be dependent upon congenital syphilis, is much more prevalent among the inhabitants of certain countries than of others, when the dissemination of syphilis is equally great. Among the English and Americans, and, as I have been informed by Snellen, among the Hollanders, the typical teeth, and interstitial form of keratitis, are of frequent occurrence, while in Germany and in Austria they are rarely seen. Thus, during six months spent in attendance upon the clinic of Arlt in Vienna, I saw but one case which at all resembled this disease, and in this, the characteristic teeth were not present. It was diagnosed as scrofulous corneitis, the previous history of the patient, a girl about fifteen years of age, not being especially inquired into.

It is on account of this peculiarity of distribution, no doubt, that many of the Continental, and especially the German ophthalmological authorities, who do not find the views of Mr. Hutchinson confirmed by their own experience, are somewhat sceptical about accepting them.

Before its syphilitic nature had been recognized this disease had attracted the attention of other English writers upon the affections of the eye, and under the name of "scrofulous corneitis," had been described by Mackenzie, as a disease "specifically different from every other form of ophthalmia."[1] The prominent characteristics of interstitial keratitis, as pointed out by Mr. Hutchinson, are, the *ground-glass* appearance which the cornea assumes from *interstitial deposit;* the absence of ulceration, and of any tendency to pustules; the comparatively small amount of scelerotic or conjunctival congestion; the chronic character which it exhibits; the almost invariable tendency to affect first one eye and then the other; the age of its subjects seldom under five, or over eighteen years; the fact of its usually affecting the elder children of the family; and, lastly, the ultimate result which, as regards vision, is very much better than could have been hoped for, judging from the opaque condition of the cornea in the early stages of the attack.[2]

Intense photophobia, as in true scrofulous or phlyctenular corneitis, is generally present during the height of the disease, and when the inflammatory symptoms are marked, the conjunctival and subconjunctival injection is pronounced; the vascular development often encroaches upon the cornea, imparting to it a salmon-coloured tinge, and at certain points upon its periphery, where the vessels are more closely crowded together, giving it a peculiar appearance, as though it had been painted, in a radiate direction, with browish-red paint. Under such circumstances, the surface of the cornea often becomes roughened and granular, and vision is reduced to mere quantitative perception of light. In the worst cases the iris may become involved, posterior synechia, and occlusion of the pupil, perhaps, resulting; or the inflammation may extend to the ciliary body and choroid, as evinced by the diminished tension of the globe, and the subsequent choroidal atrophy. When these complications occur the impairment of vision will, of course, be more lasting.

In this connection it may not be out of place to mention a fact which I have so often observed as to place it beyond the domain of accident, that in syphilitic inflammations of the uveal tract, as opposed to traumatic, sympathetic, and glaucomatous inflammations, in which the opposite condition exists, the intra-ocular tension is almost always diminished, and this is equally true whether the affection be due to acquired or inherited syphilis.

In several of the following cases, as will be seen, I was able, after the diagnosis had been made from the appearance of the eyes, to ascertain that the patients were subjects of inherited syphilis; and in all of the others there existed various circumstances which went to confirm the opinion of Mr. Hutchinson, as to the invariably syphilitic nature of this form of

[1] Syphilitic Disease of the Eye and Ear, Hutchinson, London, 1863, page 26.
[2] Ibid.

ophthalmia, and it is on this account, mainly, that they seem worthy of publication. The peculiar physiognomy, which is referred to in the following notes, and which Mr. Hutchinson has described as characteristic of inherited syphilis, consists, besides the notched and pegged teeth, of a broad and sunken bridge to the nose, a prominent and ill-shapen forehead, and a coarse and flabby skin, presenting, perhaps, scars and pits upon the face and forehead, and cicatrices of old sores at the angles of the mouth.

CASE 1. *Double interstitial keratitis; characteristic teeth and physiognomy; history of infantile syphilis, and confirmation of its being inherited.*—A boy, aged 8, the eldest of several children, the others healthy, came under my care about the 1st of January, 1872; both eyes had been affected for several months, and he had also been troubled for some time by slight pain and swelling in the ankle and wrist-joints. The prominent symptom, at this time, was extreme photophobia. Upon the supposition that the case was one of phlyctenular ophthalmia, I ordered a solution of atropiæ sulphas, gr. j to aq. dest. ℥j, to be dropped into the eyes every three hours; ung. belladon. to be rubbed on the forehead, and syr. ferri iodid. to be given internally.

In a few days the photophobia had so far disappeared, that I was able to examine the eyes, and learn the true nature of the disease. The infantile history being inquired into, it was ascertained that he had been delicate and puny for some time after birth, and had had sores about the anus, rash on the body, and snuffles. He had not yet cut his upper teeth, and his under teeth were not peculiar, but in other respects he presented the characteristic physiognomy, having a prominent forehead, sunken bridge to his nose, and several scars about the face and forehead.

Satisfied that the affection was due to inherited syphilis a mild specific treatment was at once commenced; minute doses of hydrarg. bichlorid. in connection with syr. sarsaparillæ being administered three times a day.

Jan. 10. Eyes wide open; photophobia entirely gone. Both corneæ present the "salmon-coloured tinge," and are completely opaque; so that it is impossible to discern the iris in either eye. The conjunctival and subconjunctival injection is very decided, especially in the left; and the surface of the cornea, in this eye, presents a roughened and granular appearance. He can see the direction of window, and, while looking towards it, can tell when a hand is passed before the eyes.

15*th.* General health, appetite, etc., reported to be much better; he has not complained of pain in joints for some days. Since last visit I have seen the family physician, and learned from him, that *he had treated the father, at intervals, for a long period for tertiary syphilis.* Ordered atropia to be instilled once a day only.

22*d.* Cornea of right eye a little clearer, and has lost the salmon-coloured tinge, which is, also, less marked in the left. As the photophobia has disappeared entirely, directed the ung. belladon. to be discontinued, and the atropia to be used every other day.

Feb. 8. Both corneæ clearer; iris visible in right eye, through any part of cornea, except just in its centre, and in left at one or two points. He is able to distinguish bright colours. Discontinued syr. ferri iodid.

March 7. Clearing of cornea has continued steadily; he is now able with the right eye to count fingers promptly, and with the left doubtfully.

April 2. Slight increase of subconjunctival injection in left. The ciliary

region is sensitive to the touch, and the intra-ocular tension reduced to — T 1. Increased the dose of hydrag. bichlorid. and syr. sarsaparillæ.

17*th*. Was able, by oblique illumination, the opacity having diminished, to examine the condition of the pupils and irides. Although the atropia (gr. j to ℥j) has been used as directed, the right pupil is seen to be imperfectly and irregularly dilated, and the iris itself thickened and muddy. The left pupil is less dilated than the right, and the iris is in a like condition. Ciliary region of left eye no longer tender, and T very slightly below normal. Ordered sol. atropiæ gr. iv to ℥j to be dropped into eyes once a day, in order to dilate pupils.

24*th*. Right pupil well dilated; left very slightly so. He can count fingers promptly with left, and with right can distinguish one or two letters of Snellen's types, No. LXX, held close to the eyes.

It is unnecessary to follow out the details of this case further, as they present no points of special interest. Suffice it to say, that he is still under observation, and has continued, at intervals, to take the mercury and syr. sarsaparillæ in somewhat diminished doses, and has also taken some iodide of potassium. Under this treatment he has gained flesh, and his general health has improved. The pupils having both dilated well, and no synechiæ being present; the atropia was discontinued some time since. The corneæ have continued slowly to clear, and the eyes are now free from redness. His vision has so far improved, that he is able to run about and play with his companions on the streets, and can read Jaeger's types, No. 19, and Snellen's No. XX, with facility. There is still considerable diffuse cloudiness in both corneæ, which is, unfortunately, most dense in their centres. This is, however, gradually lessening, and the sight will, eventually, be much better than at present.

In September last, his left superior central incisor tooth slowly cut its way through the gum. It was not peg-shaped, but presented the typical notch. When last seen in February, of the present year, this tooth, though five months old, had obtained but half its proper length, and its fellow had not yet made its appearance.

CASE II. *Double interstitial keratitis in a mulatto girl; characteristic teeth; history of infantile symptoms, and of syphilis in patient's mother.*—A girl, age 13, tall and stout for her age, weighing over a hundred and fifty pounds, and looking to be, at least, 20 years old, was brought to my office, June 20th, 1872, by her father, a mulatto. The right eye had been affected for four months; the left had been slightly inflamed for a few days only. She had been under the care of an oculist, but the syphilitic nature of the affection had apparently been overlooked. The right eye presented, at this time, a very characteristic appearance; the cornea being diffusely hazy, its epithelium granular, and the subconjunctival congestion considerable. The appearance of the left eye was much less characteristic, there being slight peri-corneal redness, and photophobia, and a few punctate opacities on surface of cornea, but no interstitial haziness. The sight of left eye was but little impaired, but she was only able to count fingers with right. Upper central incisors were very wide apart, dwarfed, and notched, but not pegged. The other teeth were also typical, especially the canines. Satisfied of the nature of the affection, I asked the father if he had ever contracted syphilis. He denied having had it, but gave the following history, which was afterwards confirmed, in every particular, by his wife.

His wife, also a mulatto, had had several children after their marriage; they were all healthy at birth, but had died young from scarlet fever, etc. Another child was born, which was also quite healthy; but when a few months old, contracted a sore upon its mouth from a negro woman, who lived in the house at the time, and who had herself contracted syphilis, as was known, from her husband. The child in nursing, communicated the sore to the mother's nipple; and she, afterwards, had a slight rash on her body, but no other syphilitic symptoms. The child had a rash, from which it recovered; but died when three years old, of scarlet fever.

Some months after this, the mother had a miscarriage, the child being dead at birth, and covered with a rash. She afterwards had another child, which was born at full term, had a rash on its body, and died when quite young. After this the patient was born. She also had a rash when a baby, and soon after became afflicted with ozœna, which still persists.

A specific course of treatment similar to that adopted in Case I., was at once commenced, and a sol. of atropia (gr. j to ℥j) was ordered to be dropped into the eyes three times a day. Under this treatment, they very soon began to improve, and the cornea of the right eye to clear.

Aug. 17. Subconjunctival injection much less in the right eye, and the cloudiness of the cornea greatly diminished; left eye no worse than when first seen, but is little changed, and still presents some superficial redness about the borders of cornea. Right has $V = \frac{20}{cc}$, and can read a few words of Jaeger, No. 10. After this, her eyes being better, she became less concerned about them, and contrary to my instructions, she stopped taking the remedies soon after seeing me, and did not report again until Dec. 30th, when she came to say they had not been quite so well for a few days. There was still slight redness in right eye, and considerable haziness of cornea, although she was able with it to read Jaeger, No. 8, and with the help of a convex glass, + 10 (her accommodation being paralyzed by atropia), to read with some difficulty, Jaeger, No. 5. The left eye showed no signs of inflammation. I directed her to take $\frac{1}{16}$ gr. of hydrag. bichlorid. in solution, three times a day, and to use atropia occasionally. In spite of this treatment, however, the threatened relapse was not checked, but the eyes continued to grow worse, so that when next seen, Feb. 3, 1873, the left eye was slightly red again; the corneal opacity and subconjunctival injection in the right much greater than when last seen. Under these circumstances the combination of hydrag. bichlorid. and syr. sarsaparill., which had been administered, apparently with good effects, when she first came under my care, was again prescribed.

March 4. She was seen for the last time, and, although she admitted that she had not taken the medicine regularly, both eyes were decidedly better. She was directed to continue the same treatment and report in a few weeks, but has not been heard from since.

CASE III. *Double interstitial keratitis; suspicious history and teeth.* —A boy, æt. 9, was brought to my office, Aug. 21st, 1872. He had been complaining of light hurting his eyes for a week or two, but they had been red and inflamed only four days; the right was first affected. Both corneæ presented the characteristic "ground-glass" look, and were surrounded by well-marked zones of conjunctival and sub-conjunctival congestion. The corneæ were not so opaque but that the pupils could be distinguished. The photophobia was excessive, so that vision was not tested. The pa-

tient's father, who had been a dissipated man, died from the effects of an injury. The mother was healthy; she had had three children; the patient was the youngest, and the only one living, the others died in infancy. She had never had any miscarriages; but was ill for a long time after the birth of her first child, which "pined and dwindled" till it died. It had no rash. The patient's physiognomy was not peculiar. His superior central incisor teeth, however, were wide apart, and unlike in shape; one of them being considerably broader at its lower extremity than it was nearer its base. The deciduous teeth were very carious, and much worn away. A minute quantity of bichloride of mercury in combination with syr. sarsaparillæ was ordered to be taken three times a day, and a sol. of atropia to be instilled into each eye night and morning.

Sept. 5. Photophobia so great I could not get a look at eyes. His mother says they seem better now, however, than they were a few days since. He has been so blind with them as to be unable to get about the house. Ordered ung. belladon. to be applied to forehead and brows; other remedies to be continued as before.

19*th*. Has been steadily improving since last visit. Photophobia less and sight better. The right eye nearly free from redness, and the corneal opacity much diminished. The opacity and redness are more decided in the left than in the right eye. Ordered to stop ung. belladon., and to continue other remedies. Has not reported since.

CASES IV. and V. *Interstitial corneal opacities in two sisters; the results of keratitis in childhood.*—Besides the diffuse haziness of both corneæ in the elder sister, the atrophied condition of the irides showed that they also had been diseased. Her vision being tested, it was found that with the right she could only count fingers, with the left $V = \frac{10}{cc}$. The corneal opacities were not sufficient to account for this defect of sight, but the ophthalmoscope revealed in both eyes extensive choroidal atrophy, with large, irregular-shaped pigment deposits scattered about the fundi; and secondary atrophy of the retinæ and optic nerves, most marked in the right, evidently the result of former choroido-retinitis. She presented the characteristic physiognomy in a striking degree, having a prominent forehead, broad and sunken bridge to nose, and ill-shapen and defective, though not typically formed, teeth. The eyes were first affected when she was a child, and the history of the disease, so far as it could be obtained, confirmed the conclusion to which their present appearance had led me.

The second sister was seen subsequently, and here, according to the usual rule, the condition of the eyes indicated that the disease had been much less severe, and that the deeper structures had not been involved, as in the elder sister's case. The only evidences which remained of the keratitis, with which she had suffered in childhood, were slight, but very characteristic, nebulous opacities in both corneæ. There was nothing peculiar about the physiognomy or teeth. She remembered that, when quite a young girl, she had been confined to the house for months on account of her eyes; that they were extremely sensitive to light, and that for a time, she had been almost entirely blind. She is now able to read ordinary newspaper print, by a good light. The younger children of the family were healthy and had never suffered with their eyes.

CASE VI. *Double interstitial keratitis; characteristic physiognomy and teeth; history confirmatory.*—A girl, aged 16, was brought to me

Dec. 30, 1872. Her right eye was free from disease. The left had been inflamed about two weeks, and the ground-glass appearance of the cornea was well marked. The opacity was not sufficiently dense to prevent the iris and pupil being seen. There was but little photophobia or redness, and no sensitiveness of the globe to the touch, but the tension was reduced to — T 1, and she complained of pain at times over the eye. She was able, with this eye, to read Snellen's types, LXX, at the distance of a few inches. She had a prominent ill-shapen forehead, and having lost the bones of her nose from ulceration in infancy, the soft parts, from want of support, had fallen in, and her face presented the unsightly appearance which characterizes this deformity. She is said to have had no rash or other symptom of syphilis in infancy, except the disease of her nose. The teeth were typical. The lower incisors were small, worn away at their edges, and somewhat peg-shaped. The superior incisors, of which there were only three, the right lateral incisor appearing never to have been developed, were notched and pegged to a striking degree.

Her father and mother were both alive, and were said to be healthy, except that the mother suffers with rheumatism. The father was reported to be a "good-for-nothing, worthless fellow." The mother had lost two sons and three daughters, older than the patient. They all died in infancy, except one daughter, who, when 13 years old, was taken with a severe headache in the morning and died before night. There were two sons older, and one daughter younger, still living. One of the sons had had disease of his eyes, and had lost the sight of one of them. Satisfied of the syphilitic nature of the affection, I ordered $\frac{1}{12}$ gr. hydrarg. bichlorid., to be taken three times a day, and atropia to be applied to the left eye.

1873, *Jan.* 30. Has been taking the medicine, and using the drops regularly. The inflammation and opacity in the left eye have, notwithstanding, increased; and the right eye presents signs of commencing keratitis, the cornea being slightly hazy, and surrounded by a zone of subconjunctival injection.

As she did not report again after this date, the further progress of the case is not known.

CASE VII. *Double interstitial keratitis; characteristic teeth and physiognomy; history of infantile syphilis in patient, and in her elder brother.*—A girl, aged 9, was brought to Eye and Ear Dispensary, Dec. 31, 1872. The left eye had been inflamed about three weeks, and the cornea presented the usual interstitial haziness and salmon-coloured tinge, from the development of bloodvessels in its structure. Its surface was lustreless and granular; and the conjunctival and subconjunctival congestion was very pronounced. Photophobia slight, T n. Pupil and iris visible; was able with this eye to count fingers, and recognize several letters of Jaeger No. 24. The right eye presented no signs of keratitis; but the ophthalmoscope revealed in it a very extensive posterior staphyloma, and a correspondingly high degree of myopia.

The patient's mother, who came with her, was healthy. She had never had any miscarriages. The father died, several years ago, of "consumption." There had been but two children born, the patient, and a boy, older. The latter had, soon after birth, "sore eyes," rash and sores upon his head and body, and about the anus, which were attributed to scrofula. The patient was similarly affected except the eyes, and had had, moreover, a bad sore mouth, and a nasal catarrh, from which she was still suffering.

She did not walk or talk until she was nearly four years old; but is not now deficient in intellect. She had nodes upon her tibiæ, and was subject to rheumatism. Deciduous teeth decayed early and extensively; lower permanent teeth small, but well formed; upper ones had all obtained their full growth, except the right central incisor, which was just through the gum, although its fellow had long since preceded it. It was somewhat narrowed below, and decidedly notched. Other superior incisors, though unsymmetrical, dwarfed, and somewhat peg-shaped, presented no notches. The treatment was that adopted in most of the foregoing cases. A combination of hydrarg. bichlorid. and syr. sarsaparil. was ordered to be taken three times a day, and atropia to be dropped into the affected eye.

Jan. 31. Left eye decidedly better; redness and photophobia less, cornea much clearer. She can read with it Jaeger No. 15. The right eye began to grow weak six days since, and now presents some conjunctival redness, with slight photophobia, and interstitial cloudiness of cornea. Can only read Jaeger No. 12 with this eye. To continue internal remedies and apply atropia to both eyes.

Feb. 15. Left eye almost free from redness, cornea clearing. Inflammation in right eye increased; cornea presents a reddish tinge, is completely opaque, and has lost its brilliancy, the epithelium being rough and granular. Pupil and iris invisible, and has only perception of light. Dropped 4 gr. sol. of atropia into right eye.

March 8. Left eye improving. Right no better, cornea quite red from the development of new vessels, and at one or two points upon its periphery, where these are most numerous, it has this appearance, as though the edge of the cornea had been painted with brownish-red paint, etc. Ordered four powders, containing each—hydrarg. chlorid. mit. gr. j; pulv. scammonii gr. ij, pulv. rad. rhei gr. iv. To take one, at bedtime, twice a week, and continue other remedies.

22*d.* Left eye better; pupil widely dilated by atropia. Right eye greatly improved; redness and photophobia less; cornea much clearer. Can now see the iris and pupil by oblique illumination; and find that the iris, as well as the cornea, has been invaded by the disease. The iris tissue is swollen, and infiltrated with lymph; and the pupil, which has been but little dilated by the atropia, and presents an irregular form, is occluded by a layer of the same. Ordered one or two drops of a sol. of atropia, gr. viij to ℥j, to be dropped into right eye once a day.

April 9. Left eye free from inflammation, the cornea sufficiently clear to allow patient to read Jaeger No. 5. Vascularity of the cornea of right eyes has disappeared, subconjunctival congestion much less. The pupil, though very irregular, the margin of the iris being bound at several points, by tags of adhesion, to the anterior capsule of the lens, is slowly yielding to the atropia and its occlusion is less complete. She can distinguish with this eye several letters of Jaeger No. 21.

30*th.* Right eye steadily improving; pupillary adhesions giving way; lens capsule and the cornea clearing, and the sight is correspondingly improved, so that she can now read with it Jaeger No. 14.

She is still under treatment.

CASE VIII. *Recurrent interstitial keratitis in one eye—nebulous opacities in the other, from a former attack.*—A negro woman, aged about 25, came to Eye and Ear Dispensary, Feb. 7th, 1873. Right eye had been inflamed for several weeks; interstitial opacity of cornea so

great that iris could not be distinguished; redness and photophobia not very marked. T n. The left eye free from inflammation, but the slight nebulous opacities, to be seen in the cornea, gave evidence of former keratitis. The patient stated that both eyes had been affected before. The character of the teeth was not recorded. Ordered four powders, containing each hydrarg. chlorid. mit. gr. ij, pulv. scammonii gr. ij., pulv. rad. rhei gr. v. One to be taken every other night. Atropia to be instilled into right eye three times a day.

Feb. 14. Photophobia less. Appearance of eye unchanged. Ordered a combination of bichloride of mercury and syr. sarsaparillæ, to be taken three times a day. Continue atropia.

March 7. Eye greatly improved; redness almost entirely gone; cornea much clearer. Can now see iris and pupil distinctly. She is to take a second bottle of the syrup and bichloride, and use atropia night and morning. She has not reported since.

Two other cases came under my observation, but, as their histories are imperfect, we shall not relate them.

The foregoing cases are principally of interest, in so far as they afford additional evidence in favour of the propriety of considering interstitial keratitis as a distinct form of ophthalmia, occurring in the subjects of inherited syphilis. Let us see then to what extent they accomplish this.

In Cases I. and II. syphilis was known to have existed in the patients' parents. In the former I had the testimony of the physician, who had recently attended the father for tertiary syphilis, and in the latter, the confirmatory statement of both father and mother, that the mother had been inoculated with syphilis, previous to the birth of the patient. The subject of Case I., moreover, presented the characteristic teeth and physiognomy, had a history of infantile syphilis, and was, in accordance with the rule, the eldest child of the family. Besides the typical teeth, which were present in the subject of Case II., there was the usual family history of syphilis. First, after the inoculation, a miscarriage, the child being dead at birth and covered with a rash; then a child, born at full term, puny and delicate, also exhibiting a rash, and dying in infancy; and next, the patient having a rash in infancy, ozœna in childhood, and then keratitis. In both cases, after other remedies had failed, a specific treatment was followed by good results.

In Case III. the teeth were suspicious, though not typical; the family history strongly confirmatory, and a specific course of treatment very effectual.

In Cases IV. and V., where the appearance of the eyes, in two sisters, indicated former keratitis, the fact that they were the eldest of the family, and the only ones who had suffered with the disease, that the affection had been much more severe in the elder of the two, and that she moreover presented the characteristic physiognomy in a striking degree, and suspicious teeth, all pointed strongly to the probable influence of a specific cause. In Case VI. the teeth were typical; the physiognomy characteristic,

the bones of the nose having been destroyed by disease in infancy; and, in connection with these, the family history so confirmatory, that the fact of the patient having been the subject of inherited syphilis is placed almost beyond a doubt. In Case VII. the evidence is equally conclusive. The subject of it presented the characteristic physiognomy and teeth; had a clear history of infantile syphilis; a family history strongly corroborative; and the disease improved satisfactorily upon a specific treatment. In Case VIII. the character of the teeth, and the history of the patient, were not recorded. The strongest proof of the syphilitic nature of the affection being the prompt manner in which it yielded to specific treatment.

Of the eight cases, the evidence in favour of the syphilitic character of the disease, may be considered conclusive in four; in all the others, except, perhaps, Case VIII., it is so convincing, as to render such a view of their nature more than probable. In view of what has been said in regard to the "peculiarity of distribution" of this disease, as well as of the notched and pegged teeth, which, as we have seen, are usually associated with it, Cases II. and VIII. (the subject of the former being a mulatto, and of the latter a negro) become of more than usual interest. I am not aware that any cases of interstitial keratitis, occurring in negroes, have been heretofore published, but I have lately heard of two other well-authenticated cases having been recently met with by a physician in this city; so that it would seem probable that it is not more uncommon among the negroes, in this country, than among the whites.

So far as it is permissible to draw general conclusions from an experience extending over comparatively so short a period, I should be inclined to consider that this form of ophthalmia is quite as prevalent, and is as generally accompanied by the notched and pegged teeth, in this country, as in England. In regard to its prevalence in England, Mr. Hutchinson remarks, "to those whose field of observation does not include an ophthalmic hospital, it is a very rare disease. As some gauge of its infrequency, I may mention that at the Metropolitan Free Hospital, where the average daily admission of new surgical cases is between twenty and thirty, I have not had to treat more than one case a year."[1]

At Moorfields, however, where Mr. Hutchinson is perhaps accorded by his fellow surgeons a larger share of these cases than would otherwise fall to his lot, I should think those coming under his care would average nearly one a week. By reference to my case books, I find that those which I have met with, represent between 3 and 4 per cent., or about one in thirty, of the various affections of the eye which I have had occasion to treat during the past and present year. That this, however, is an accidentally large average, I am inclined to believe.

It is worthy of remark, that, although, during this time, many cases of

[1] Op. cit., page 27.

scrofulous or phlyctenular corneitis occurring in children of German parentage have been encountered, I have not yet met with a single case of interstitial keratitis under such circumstances. On the contrary, the subjects of the latter disease, if I mistake not, were, invariably, the children of American-born parents.

In regard to the treatment of this affection, I need only say, that the administration of specific remedies for the purpose of correcting the constitutional taint is by far the most important part of it. The combination of hydrarg. bichlorid. and syr. sarsaparillæ, which I have generally used, has in my hands proved more effectual than mercury given alone. The efficacy of the famous French preparation, sirop de cuisinier, is due probably in great part to the presence of these two ingredients; but as the hydrarg. bichlorid. is said to be in time decomposed into calomel by the syr. sarsaparillæ, it is better that the bichloride in solution should be mixed with the syrup just before being administered. The iodide of potassium may perhaps be advantageously alternated with this combination. Whenever photophobia exists, as it almost always does during the earlier stages, the use of atropia, from one to two grains to the ounce of water, is indicated. And when the inflammation is intense, as shown by excessive subconjunctival injection, and vascular development in the cornea, we shall do well to use, with more caution, a much stronger solution, say from four to eight grains to the ounce; as we shall thereby diminish the chances of adhesions being formed between the iris and lens capsule, and of the pupil becoming occluded; results which may follow the supervention of iritis, which the opaque condition of the cornea prevents us from observing.

BALTIMORE, April, 1873.

ART. VIII.—*Simulated Amaurosis.* By GEORGE C. HARLAN, M.D., Surgeon to Wills (Ophthalmic) Hospital, Philadelphia.

Two years ago a girl eleven years of age, apparently in excellent health, was brought to me by her parents with the statement that they had recently discovered her left eye to be quite blind. She had been sent to the family physician, a homœopath, on account of a slight conjunctivitis, and, as the result of the consultation, had returned with this startling announcement. She denied even perception of light in that eye.

Never having met with a similar case, I failed to detect, or even suspect, the deception, but as a careful ophthalmoscopic examination revealed no lesion or imperfection of the organ, I assured the girl's parents that there was no present disease there and no indication for treatment. The other eye was found to be perfect in all respects, and I advised them to return her to school and pay no attention to the blind eye while the sight of the other remained unimpaired.

A few weeks since, she was again brought to my office complaining that the other eye was failing, the left still continuing stone blind. She said that the print looked blurred when she attempted to read, and her parents had noticed that she held the book nearer to the eye than usual.

She admitted a vision of $=\frac{20}{L}$ and with a $-\frac{1}{18}$ glass acknowledged to $\frac{20}{XL}$. A central limitation of the field of vision was very well counterfeited. The result of a careful ophthalmoscopic examination was entirely negative. While I was engaged in recording her case, she amused herself by looking over the glasses in the trial case, and announced that the plain blue glass made a great improvement in her sight. This being the only discoverable indication for treatment, I ordered blue glasses. Not finding the large coquilles, with which the optician furnished her, becoming, she, at the next visit, denied that they were of any use. When directed to look at a distant gas-light through a prism, with its base upwards, held before the right eye, she at once acknowledged the double images, but when the attempt was made to separate the images by means of a coloured glass, her suspicions seemed to be aroused, and her answers were negative. When required to read the test letters at varying distances there were evident discrepancies in her answers.

The pretended amblyopia of the right eye precluded the use of any of the tests based upon the reading of ordinary type, and confined me to the large letters which she had acknowledged being able to recognize. I, therefore, placed the trial frames before her eyes with a plain glass in the left side and a convex one of ten inches focal distance in the right. The latter, without exciting her suspicion, excluded the right eye from any distinct vision beyond the focus of the glass. She still read No. L at twenty feet. Then having first substituted for the test card another with a different series of letters, I placed an opaque disk in front of the plain glass, and she could not make out a letter. This proved, at least, that she had been reading No. L at twenty feet with the eye that she pretended was not conscious even of the bright glare from the ophthalmoscopic mirror, and was quite enough to throw a degree of doubt, almost amounting to certainty, on all her statements.

She did not appear again, but her father called on me some days afterwards and reported that she had come home in a very bad humour, indignantly accusing me of having treated her with great injustice, but, the next day, had made admissions, which, though partial and constrained, were sufficient to convince him fully of the correctness of my view of her case.

The second case was seen in consultation with Dr. Goodman, and has been reported in the *Philadelphia Med. Times* for August 15, 1872.

A rather delicate looking boy, æt. 11, was represented to have become blind in the right eye about eighteen months before. After the disease had resisted the skill of the family physician for some months, the patient's father was recommended by his friends to "try electricity," and took him to a "professor" of that science. The result of one application was an entire restoration of vision. The cure lasted, however, only a few weeks, when the remedy was resorted to again with the same result as before. After this history had repeated itself a number of times, the father, as a measure of economy, invested in an apparatus of his own, and wound up his son's vision as often as it ran down.

When brought to us, the boy asserted that the eye was not conscious of the ophthalmoscopic examination, which, however, revealed nothing to account for the loss of sight. When a prism was placed before the left eye, he admitted

seeing two images of the gas jet which could easily be distinguished by a coloured glass, or made to unite by a corrective squint, when the base of the prism was held outwards. He was required to read with the prism still before the eye, and while he was disconcerted and thrown off his guard by being urged to read rapidly, a fold of paper was slipped in front of the left eye, and he continued to read with the right.

The father was quite sure that there was no motive for the deception. The fact that the boy's mother was blind of the right eye was a singular coincidence and perhaps had a psychological bearing on the case.

Though this form of deception has been occasionally met with among the strange vagaries of hysterical women, and has often been resorted to by men with some object in view, it is extremely uncommon in boys. I know of but one other case. It is reported by Galezowski in his recent work on diseases of the eye.

The patient, or rather culprit, was a boy of eleven years, and Galezowski considered it a plain case of malingering to avoid school. In this the young scamp was quite successful for a length of time, until he was finally brought to Paris for treatment, and exposed by the prism test.

In the notes of a third case I am indebted to Prof. D. H. Agnew.

"Miss M., æt. 18 years, had always enjoyed excellent health. One year before my visit she was thrown from a horse. A short time after this accident, a deep-seated soreness was experienced in the right iliac region. Five months afterwards a marked swelling made its appearance in the same locality, which disabled her from taking exercise and very soon confined her to bed. At the time of my visit, I found a conical enlargement, hard, sensitive, not movable, and quite the size of the closed hand. The patient was somewhat pale, passed restless nights, with febrile disturbance towards evening, but no chills. The menstrual discharge was regular, only somewhat profuse, and attended by pain for the first day or two. A vaginal examination revealed an undue fulness on the right wall of the canal, high up at its insertion on the uterus. Her appetite was capricious and her mental state somewhat despressed, though by no means despondent.

"I diagnosed a periuterine abscess, depending, doubtless, upon a cellulitis set up by the violent concussion to which the pelvic viscera had been subjected by the fall.

"After the lapse of about four months the abscess opened into the vagina, the external swelling subsided, and finally the discharge disappeared and the patient was apparently well. About this time a tooth which gave her a great deal of pain was extracted by her dentist while she was under the influence of chloroform administered by myself. She recovered quietly and fully from the anæsthetic and without any succeeding excitement whatever; in fact, her whole deportment, both before and after its exhibition, was cool and composed. The patient was now able to walk out, and was recovering her strength rapidly under a course of tonic treatment.

"Some weeks after this I was summoned to see her again. She had, in the course of a night, become entirely blind. Nothing had occurred the previous day to disturb either her mental or physical state. I watched her behaviour very narrowly, and certainly every movement betokened a freedom from all attempts at acting a part; and indeed, the uniform courage with which she had endured her protracted suffering, her strong common sense, and pure character, all conspired to convince me that there was no dissimulation in the case.

"The pupil responded promptly and naturally to light, the external appearance of the eyes was normal, and an ophthalmoscopic examination failed to detect any morbid change.

"Believing the case to be one of hysterical blindness, I so stated to her friends, predicting that her vision would be recovered—how soon I did not venture to affirm. She was advised to continue the tonic treatment and use the shower bath.

"For some time she was led by her sister, until her familiarity with the house became such that she could move without assistance. Often did I watch her, when entirely ignorant of my presence. With elevated head, open eyes, advanced and oscillating arms, the feet sliding along, would she thread her way about the room until the object which brought her in had been obtained. So convinced was I of the real nature of the delusion, if it may be so called, that I resorted to no test to detect simulated blindness.

"After she had been in this condition four weeks, the spell was dissolved as suddenly as it came; and her vision, which disappeared in a night, returned in a night."

No motive for deception could be discovered in any of these cases, and in the absence of other explanation, we are forced to fall back upon the term "hysterical," which is often another word for inexplicable, or they may be classed among the cases "which indubitably show that the simulation of disease has frequently been practised without the existence of any interested motive, indeed, without motive of any kind; that there is in short a species of moral insanity of which this simulation is the characteristic." This view seems to apply particularly to the case reported by Dr. Agnew, who had enjoyed unusual opportunities of becoming familiar with the previous character and dispositon of his patient, and watched her with a great deal of care. Is it possible that she could have been psychologically blind—in a kind of visual trance—that the act of vision was carried as far as anatomy and physiology could take it, but the disordered mind refused to receive its impressions, and that she really could not or did not see? In the use of monocular optical instruments, we can easily, after a little practice, disregard and suppress the images on the retina of the eye not in use, and in strabismus when, to avoid diplopia, the images of one eye have been neglected, it becomes amblyopic without disease. Such facts show that it is possible for images correctly formed upon the retina not to result in vision, though the eye and nerve and brain may be healthy, and suggest the possibility of a mental suppression, as we often have a mental perversion, of vision. It is after all, not more mysterious that the mind should disregard the images of real objects than that it should conjure up images of objects that have no existence.

Perhaps it may, in some cases at least, be more scientific as well as more just, to consider "hysterical blindness" a real mental disease, rather than the mere whimsical counterfeiting of a symptom.

It is probable that cases of simulated blindness are more frequent than the space accorded to the subject in the text-books of ophthalmic surgery,

some of which do not even mention it, would lead us to suppose. Doubtless they might afford an explanation of a good many mysterious cases, and not a few wonderful cures.

Military surgeons have, from time to time, given a good deal of attention to the simulation of blindness, with an evident motive, by malingerers. Probably the art of malingering was developed to its highest perfection among the French soldiers, by the ruthless and sweeping conscription of the First Empire, when even Frenchmen began to feel that "la Gloire" was too dearly purchased, and Fallot says: "There is no disease more frequently pretended than amaurosis by those who desire to withdraw from military service, and it is almost always the right eye that is said to be affected." Though a good deal of ingenuity was devoted to the art of "old soldiering" during our late war, it does not seem to have taken this direction to any great extent. I can recall only one case, which was detected by Dr. Dyer, by means of the prism test, at the Satterlee Hospital, and reported by Drs. Keen, Mitchell, and Morehouse, in an article on malingering in the number of this Journal for October, 1864. It is not unlikely, however, that there may have been some cases of the kind among the fifteen hundred and twenty-two men reported on the sick list with "amaurosis," five hundred and fifty-six of whom were discharged. In the examination of a number of applicants for pension with alleged injury or disease of the eyes, I have not met with any case of feigned blindness, but several have attempted to take advantage of errors of refraction by attributing their defective vision to some disease or exposure encountered in the service.

A number of tests have been proposed for the detection of feigned blindness.

Gavin, in his work on *Feigned Diseases*, published in 1843, has a very interesting chapter on amaurosis. Though no one of the means of detection in use at that time was at all certain in itself, and few of them would be worth resorting to now, he shows that experienced surgeons managed to reach a much greater degree of precision than most of us would be likely to attain to if deprived of our test-types, ophthalmoscopes, prisms, stereoscopes, etc. The use of mydriatics seems to have been quite common among army malingerers. The story is told of a French conscript who had dilated his pupils widely with belladonna, and was so determined in his deception that when a sharp instrument was approached to the eye as if to be plunged through the cornea, neither head nor eye stirred, but the palpitation of his heart betrayed him.

When one pupil only is dilated, the use of belladonna may be detected by the refusal of the pupil to act in unison with that of the other eye, which it does almost invariably in true amaurosis. This, of course, presupposes the integrity of the third pair of nerves, for cases of mydriasis, from paralysis of the sphincter pupillæ, are frequently met with in which distant vision, at least, is unaffected. I have recently had under treatment

at the Wills Hospital three or four cases which presented no other symptom than mydriasis and paralysis of the accommodation, and which differed in no respect, except in persistence, from the action of atropia. It has been suggested, in cases of doubt, to puncture the anterior chamber and test the aqueous humour for the presence of atropia by applying it to a healthy eye.

Snellen's test types afford a simple and valuable means of detection when a diminution only, and not an entire absence of, vision is pretended. If No. XL., for instance, can be seen at ten feet, No. LXXX. should be seen at twenty feet and No. XX. at five feet. The great frequency of errors of refraction must, however, be taken into account. A myopic eye might very well be able to distinguish No. XX. at five feet and fail to read No. LXXX. at twenty feet, or the near vision of an hypermetropic eye might not correspond to the acuteness of its distant vision, while astigmatism would account for a much greater degree of amblyopia and a greater amount of seeming contradiction in the answers of the person examined.

For simulated monocular blindness, Graefe's prism test is a very convenient and useful one. If a prism, held before the eye in which sight is admitted, causes double vision, or, when its axis is held horizontally, a corrective squint, vision with both eyes is rendered certain. It must be remembered, however, that a useful degree of vision is not thus proved; it is only shown that the eye can see, but how much it can see must be determined by other tests. It should also be borne in mind that the failure to produce double images is not positive proof of monocular blindness, for it is possible that the person may see with either eye separately but not enjoy binocular vision, as in a case of squint, however slight.

A test recently suggested by Warlomont is so absurdly simple that it seems almost inconceivable that no one should have thought of it before, but it has proved conclusive, even as legal evidence. Displace the optic axis by slight pressure with the finger upon the eyeball, and show the suspected person two small dots on a piece of paper; if he says there are four, he is at once convicted.

Javal's test is almost equally simple. Cause the person to read while a ruler is held three or four inches from the face and directly in front of the nose, then close the blind eye, and, as part of the print will be concealed from the other one by the ruler, it will be easily shown that he has been seeing with both.

The stereoscope affords a very elegant means of detection. If the two fields are united, binocular vision is, of course, proved. We may even test each eye separately, independently of simultaneous vision by both, as recommended by Schweigger. (*N. Y. Med. Journal*, February, 1866.)

"If we draw in each separate field of vision that vertical line whose image goes through the centre of the retina, then, in the united stereo-

scopical field, not only both lines are seen as one, but every object situated on the right of one of these lines is projected to the right side of the field of vision and appears as if it were seen by the right eye. The same, of course, is the case with the left side. This gives the means of determining, in simulated monocular amblyopia, the acutiveness of vision, and, if we choose, even the range of accommodation. For this purpose we arrange matters as follows: we have at the bottom of the stereoscope a sheet of paper marked only with the two lines above mentioned, now, if we have to deal, for instance, with an alleged amblyopia of the left eye, we place in the left field of the stereoscope, but to the right side of the vertical line, any object, say a piece of printed paper; with this exception, the whole of the bottom of the stereoscope is left blank. In the united stereoscopical field the paper will then appear as on the right side, and will make so strong an impression that it is seen with the right eye, that I doubt whether anybody can resist it. With a stereoscope which allows the convex lenses to be approached to, or withdrawn from, the bottom of the stereoscope, we can, if we choose, at the same time, ascertain the range of accommodation."

This plan has the advantage over that recommended by Laurence, by means of optical transposition of words upon the stereoscopic slide, in the fact that it renders us independent of binocular vision.

When blindness of one eye only is alleged, if the different tests are skilfully and perseveringly varied and combined, a very considerable knowledge of optics, more than is likely to be devoted to such a cause, would be required to escape conviction.

Fortunately the simulation of complete blindness of both eyes involves so many inconveniences that it is not often resorted to. No optical test can, of course, be applied to it. Patient waiting and careful watching will usually discover such a case. Dr. Hutchinson's success in speedily and permanently curing a case of deaf dumbness by means of etherization (*Am. Journ. Med. Sci.*, April, 1864) might suggest a trial of that means. As the effect of the anæsthetic passed off, the patient would probably recover the power of vision before his consciousness was sufficiently restored to enable him to resume the deception.

This plan was recommended in the article on malingering, referred to above, but I am not aware that it has ever been practised.

ART. IX.—*Poisoning by the Rhus Toxicodendron.* By SAMUEL C. BUSEY, M.D., one of the Physicians to the Children's Hospital, and Physician in charge of the Diseases of Children at the Columbia Hospital Dispensary, Washington, D. C.

THE influence upon the human skin, of the poisonous principle of the Rhus Toxicodendron, has been long known and frequently discussed, but until the investigations of Prof. Maisch into the nature of the toxic principle, and of Prof. White into the clinical and pathological phenomena of the disease produced by it, but little had been known regarding these questions. These very elaborate investigations leave but little opportunity for original research, hence the record of my own experience and observations can prove interesting so far only as they may corroborate the conclusions of these distinguished gentlemen, or more definitely settle hitherto disputed points.

As it is my purpose to discuss the subject in its clinical and practical aspects, I omit any description of the well-known natural history and botanical character of the plant, and proceed with the detail of the cases, which will illustrate the peculiar characteristics of the disease.

CASE I.—In June, 1871, Mrs. V. suffered very severely from a burning and itching eruption covering her entire face, neck, both mammæ, external genitals, extending along the inner surface of both thighs, both hands, wrists and portions of her abdomen. Her husband, at the same time, suffered with a similar eruption, though not so severe, on both hands, and an infant had it very slightly about the mouth and chin. A week previous to the appearance of the eruption, the husband and wife had passed an afternoon at a pic-nic, and he had fastened his horses to a bush covered with a vine, the character of which he had not observed. The wife did not approach the plant, and the child had been left at home. The disease ran its course, terminating in desquamation, without any benefit from treatment. Her suffering was so intense for several days that I was compelled to keep her under the influence of morphia.

On the 6th of May, 1872, the eruption again broke out, appearing simultaneously in all the localities attacked the previous year. It began with swelling, redness, intense burning, and itching. During the subsequent twenty-four hours, the inflamed surfaces became densely covered with very minute vesicles, which soon ruptured and poured out very copiously a yellowish serous fluid, which collecting in the most dependent parts desiccated into amber-coloured, semi-translucent incrustations. Saline purgatives and diaphoretics were given without any manifest effect. Applications of oxide of zinc, benzoated zinc ointment, glycerine alone and in combination with borax and camphor water, lotions of the acetate of lead, and various other sedative compositions were equally futile in mitigating the tormenting burning and itching, or in staying the progress of the disease, until finally, after two weeks' duration, relief was secured with a wash of glycerine, ℥iijss, solution of carbolic acid ℥ss, which was applied to the entire inflamed surface, with a soft sponge. From the first application

the exudation, swelling and inflammation gradually diminished, though for a few seconds after the first application, the burning and itching were slightly augmented. Desiccation and desquamation soon took place, and the patient recovered entirely. No trace of disease remained to mark its localities.

On May 31st, 1873, the eruption made its appearance for the third time, the notes of which attack are as follows :—

May 31. Complains of burning and itching on the right temple, extending to the outer canthus of the right eye, slight redness, but no swelling. Applied the benzoated zinc ointment.

June 1. Right eye entirely closed, swelling extended along forehead and to left cheek, partially closing left eye, also down right cheek to lip. Swollen surface inflamed, firm and inelastic; no pitting. The part first attacked covered with minute vesicles; exudation very copious and seems to irritate the inflamed surface. Burning and itching intense. No fever. Discontinued the ointment and ordered applications, with a camel's hair pencil, of the glyceratum amyli every few hours.

2*d*. Swelling about eyes slightly diminished. No extension of redness. Right cheek, brow, and right upper eyelid covered with vesicles. Exudation very copious; no burning or itching; no constitutional symptoms; slept well previous night; ordered entire inflamed surface to be thoroughly washed with soft soap, and then dressed, as before, with the glyceratum amyli. At my afternoon visit the swelling had extended down the right side of the face, under the right lower maxilla and chin, but had diminished about the right eye. Exudation very copious, no extension of inflamed surface; the extended swelling being natural in colour; ordered the washing with soft soap to be repeated, to be followed with free bathing of the entire tumefied surface with a solution of the bicarbonate of soda, and after drying of the surface, a reapplication of the glycerate.

3*d*. Swelling very much diminished; can open both eyes; exudation much less; some burning and itching around left eye, about which there is considerable tumefaction with inflamed surface, but no vesicles or exudation. The swelling about the jaw and chin remains normal in colour. The areas of redness and vesication have not extended; treatment continued.

4*th*. Swelling and inflammation considerably diminished.

5*th*. Tumefaction and inflammation diminishing very rapidly, none on lower part of face. Exudation less; none from some parts. On right cheek, which is but slightly swelled and less inflamed, are a few scattered milky-coloured pustules, much larger than the vesicles. Desiccation commenced in parts; she continued to improve rapidly and was soon entirely well.

CASE II.—Mr. O. C. G. was exposed to the poison on the 31st May. On the morning of the 2d of June discovered a blotch of redness with very slight swelling extending in a fan shape from the root of the nose towards the hairy scalp. In the afternoon the tumefaction had increased, and felt hot.

June 3. Face very much swollen and disfigured; both eyes closed; on the right temple a circular blotch of redness slightly elevated, itching and burning intensely; on the neck just above the middle of the right clavicle an oblong patch of similar character; on the afternoon of the same day the circular blotch was thickly covered with very minute vesicles, and vesication had commenced on other parts of the inflamed surface; no exudation; no constitutional symptoms; appetite good; ordered the parts to

be washed with soft soap, dried and then bathed with a solution of the bicarbonate of soda, and subsequently protected with the glyceratum amyli.

4th. Exudation quite free, but not copious; no extension of tumefaction or inflammation, slight burning at some points but no itching; treatment continued.

5th. Improvement very marked; can open both eyes; no extension of inflammation, tumefaction, or vesication since commencement of treatment. Exudation greatly diminished; no burning or itching. Examination with a magnifying glass detects no vesicles, where not visible to the naked eye. The patches of vesication present a milky whitish appearance, and under the magnifying glass the vesicles seem collapsed, presenting closely aggregated curdy whitish points. Small patches of vesication on the dorsum of right hand, and dorsal aspect of several fingers exhibit vesicles much larger than any which have appeared on the face. They are limpid at their apices. The fluid, when discharged by puncture, is limpid and transparent, changes blue litmus paper to a deep blue, which fades after drying, leaving no trace of discoloration. Suspended the glycerate.

6th. Swelling and inflammation subsiding rapidly; desiccation established; desquamation commenced on the 7th, and was completed on the 10th.

CASE III.—In the spring of 1865 I attended a lady who, a few days after exposure to the poison, suffered with swelling and inflammation of her right cheek, attended with intense burning and itching. The inflamed surface was covered with large blisters, containing a yellowish serous fluid. In the succeeding spring she was seized with a precisely similar attack, without being able to trace it to any renewed exposure to the poisonous plant.

The perfect insusceptibility of some individuals and peculiar susceptibility of others is very remarkable. One may require the direct application of the expressed juice or of the distillate to produce its local effects. Another will resist the toxic action however applied. A third will suffer to an intense degree from simply going in the vicinity of the growing plant, and, occasionally, persons are so easily affected that the smoke of the burning plant will poison them. Prof. Maisch[1] mentions the fact that several persons who entered his laboratory while he was engaged in his experiments, "were more or less poisoned by the vapours diffused in the room."

Another of its peculiarities is the readiness with which it can be conveyed to other parts of the body by the contact of the part which may have received the poison from the plant, and from one individual to another, even though the first may not, or very slightly, suffer from its poisonous action. The cases of the wife, husband, and child, before recorded, fully illustrate this characteristic. The wife's face may have received the poison direct from the plant, though she denied having been near it; but it is impossible that the parts of her body under the clothing,

[1] Am. Journal of Pharmacy, vol. xxxv. p. 10.

and the child, could have been thus affected. As her hands and wrists were poisoned, it is possible that she conveyed it to the other parts; but it seems more probable that it was conveyed by the hands of her husband. I have several times treated cases illustrating this peculiarity. Two years ago a gentleman residing in the suburbs of the city suffered from the characteristic eruption on his hands and genitals. His story was, that after handling the plant, and previous to washing his hands, he had poisoned his penis and scrotum. The appearance of patches of eruption, in the case of Mr. O. C. G., below the collar, is, also, evidence of its conveyance. Prof. Maisch[1] says he "has transferred the poisonous effects to some other persons by shaking hands with them," and Prof. White[2] reports the case of a child six years old, who contracted the disease from a servant boy (himself not susceptible), whose hands came in contact with the child several hours after having been engaged "in pulling up some of the plants," and had been thoroughly washed "with hot water and soap, and afterwards with vinegar."

Sometimes I have thought the disease was extended by permitting the exudation to flow upon healthy parts, but more careful observation has satisfied me of its innocuousness, at least when applied to a healthy skin, though it is possible the area of erythema may be extended over surface already tumefied. Prof. White and Dr. Pierson failed to produce the disease by inoculation. The exudation, whether from a recently punctured vesicle, or from the surface, will deepen the colour of blue litmus paper, but the changed colour disappears with drying.

Profs. Maisch and Proctor think the morbid phenomena speedily succeed the application of the poison; the former asserts that while operating with it "a copious eruption and the formation of vesicles" occurred on parts exposed to the plants. Griffith says the symptoms are manifest within a few hours after exposure; others concede that several days may elapse. I am convinced that in many cases a week will pass before the appearance of the local symptoms, and the cases are very rare where any morbid condition is apparent within 48 hours. This difference may be due either to the varying susceptibilities or degree of concentration of the toxic agent.

In many cases the disease will run its course in a week, but occasionally it will continue through a month. Griffith[3] says the eruption may continue a long time; one "set of vesications succeeding another, so as to protract the disease for an indefinite time." And Prof. White thinks it usually lasts from ten to fourteen days.

Griffith very correctly describes the symptoms as "violent itching, redness, and tumefaction of the parts, especially of the face, succeeded by heat,

[1] Am. Journal of Pharmacy, vol. xxxviii., p. 10.
[2] N. Y. Medical Journal, March, 1873. [3] Griffith's Medical Botany, p. 185.

pain, vesication, and fever." I do not think the last is often present, except in cases where there is considerable surface involved.

The vesiculation is always uniform in the same person. Generally is in circumscribed patches of closely aggregated minute vesicles, sometimes covering only small portions of the inflamed and tumefied surface. Occasionally the vesicles are very large, looking like blisters.

Prior to the investigations of Prof. White this affection was almost universally regarded as an erysipelatous inflammation. He insists that the "tissue-changes are always of an eczematous, never of an erysipelatous nature." It has seemed to me to present a combination of some of the symptoms of acute eczema and of erysipelas. The character of the eruption, enormous tumefaction, extent of inflammation, degree of infiltration, copiousness of the exudation, proneness to and rapidity of extension beyond the precise limits to which the poison may be applied, and the absence of any marked constitutional symptoms seem to impart to it an individuality.

To a practised eye the diagnosis is not difficult. Particular attention to the essential characteristics, sufficiently set forth in the clinical histories of the cases reported, and to the history of the case, will enable any one to differentiate it from either eczema or erysipelas.

I have witnessed none of its sequelæ, other than the annual recurrences of the characteristic eruption. Cases of acne, chronic eczema, and other chronic cutaneous diseases have been ascribed to the Rhus poison. Long continued and indolent ulcers have also been traced to the same cause, but with the exception of a single case, where slight superficial ulcers marked the localities of several large blebs, and which left, after healing, white spots, I have witnessed nothing of the kind.

Prof. White failed to find a single recorded case of the poisonous action of the Rhus upon the lower animals. Stillé, however, at page 683, vol. 1., *Therapeutics and Materia Medica*, refers to several cases where dogs were fatally poisoned by its internal administration, and one by exposure to the poisonous emanations.

When taken internally its action is that of an acro-narcotic. Introduced in 1788 by Dr. Fresnoi, as a remedy in chronic cutaneous diseases, it has been frequently employed since with varying success in the treatment of certain nervous affections, but seems to have gone entirely out of use.

Dr. Stokes[1] reports three cases of rhus poisoning from drinking the tea made of the root, in one of which the characteristic eruption appeared upon the skin. Dr. Moorman[2] also reports two cases, poisoned by eating the berries. In the Report on Botany, vol. 5, p. 755, *Transactions of the Amer. Med. Assoc.*, the case of Mr. Wilkes, a medical student, is referred to. To test the toxic effects of the Rhus, he took after supper a gill of the strong decoction of the leaves and vine. He was much swollen

[1] Medical and Surgical Reporter, 1867, p. 373.

[2] American Journal of Medical Sciences, April, 1866, p. 560.

the next morning, and continued to swell until relieved by a wash composed of the bichloride of mercury and hydrochlorate of ammonia. All these cases recovered.

All the cases of Rhus poisoning which I have seen occurred during the spring or summer or autumn months, most usually in the spring. It is maintained, however, that the bark and wood contain the poisonous quality, which it will impart at any season of the year, and that persons may be poisoned by the exhalations into the room while the wood is burning in the fire.

Treatment.—Several indigenous plants have been highly extolled as specifics for the disease. Dr. Stokes[1] claims to have frequently cured cases with one or more applications of the juice or sap of the Urtica pumila, commonly known as the bastard nettle; and Dr. Canfield[2] asserts he has invariably succeeded with the local application of the balsam-like juice of the Grindelia hirsutula and robusta, a perennial found in California. The Rhamnus oleifilous has also been recommended. Dr. Livezey[3] has obtained satisfactory results from the tincture of lobelia, and Dr. Risk[4] has never failed with the decoction of white-oak bark. Dr. Dunn[5] has had equal success with the decoction of the leaves of the cotton-wood. Prof. White refers to the supposed special power of a decoction of serpentaria, and Dr. Clark[6] has found an infusion of coffee beneficial. Many other remedies have been used, but their claims to confidence are very slight.

Since the discovery by Prof. Maisch that the toxic quality was due to an acid, which he denominated toxicodendric acid, the treatment has been based upon a true scientific basis. Previously it was entirely experimental, and many curious formulæ have been suggested as infallible cures. It is curious to observe how gradually and truly domestic empiricism approached the correct principles of treatment, for, long before the investigations of Prof. Maisch, or even of Khittle, who claimed that the poisonous agent was a volatile alkaloid, ammonia, soda, potash, sugar of lead, soft-soap, and common salt had been extensively employed as domestic remedies.

The very decided curative properties of the alkalies are well exemplified in the cases of Mrs. V. and Mr. O. C. G. In both cases the duration of the disease was cut short, more markedly so in the latter case. The pathological phenomena were arrested at that stage and confined to the precise limits which they had reached at the time of the first application. In the case of Mrs. V. the swelling extended after the first washing with soft-soap, but was unaccompanied with any inflammation.

[1] Medical and Surgical Reporter, vol. xxx. p. 542.
[2] American Journal of Pharmacy, vol. xxxii. p. 414.
[3] Boston Medical and Surgical Journal, vol. l. p. 262.
[4] Cincinnati Medical Repertory, July, 1871.
[5] Medical and Surgical Reporter, vol. xxiv. p. 195.
[6] Boston Medical and Surgical Journal, vol. liii. p. 163.

There appears to be some other element of disease besides the mere local toxic effect of the acid, or how account for the extension beyond the limits of the direct application of the poison? It extends by continuity, and the alkalies seem to possess an equally satisfactory influence in arresting the morbid condition in such parts. The cases reported by Dr. Stokes and the case of Mr. Wilkes would seem to suggest the conclusion that it will produce its local cutaneous effects through absorption into the blood.

Glycerine will sometimes relieve the burning and itching. Its influence is, however, simply palliative. The glyceratum amyli relieves the intense local suffering, and affords sufficient protection to the inflamed surface without obstructing the view of the parts.

The beneficial results, ascribed by several writers to cold lotions of sugar of lead, are, I think, due entirely to its cooling and perhaps astringent properties. With me it has not yielded any direct curative results. Prof. White, however, claims that it precipitates with the toxicodendric acid "an inoffensive, harmless salt."

I have only treated the disease during its acute stage, and hence cannot determine the value of the alkalies and other suggested remedies in the treatment of the chronic form. The first and second attacks of Mrs. V. ran their course, unless the second was arrested by the application of glycerine and carbolic acid. Washes of the mild and corrosive chloride of mercury have seemed to afford the surest hopes of success when the alkalies have failed.

I have found but two fatal cases recorded.

ART. X.—*Case of Erysipelas followed by Puerperal Peritonitis.* By J. B. CRAWFORD, M.D., of Wilkes-Barre, Pa.

THE question whether puerperal peritonitis is related to, and dependent upon, the virus which engenders erysipelas has elicited much discussion among practitioners of midwifery as well as among pathological writers; and although much, and convincing, evidence has been educed in confirmation of the supposed relationship, its existence can hardly as yet be regarded as a settled pathological fact. As a contribution to the evidence in favour of the identity of origin of the two diseases, I will relate a case which recently occurred in my own practice.

Mrs. O——, aged about twenty eight years, received a slight wound on the forefinger of the left hand from a butcher-knife, while engaged in some domestic duty. On the following day a peculiar redness was noticed about the seat of the wound, attended with considerable swelling and much pain. Slight chills, with flushes of heat, supervened. These symp-

toms increasing in severity for three or four days, I was called to see her on Tuesday, April 15. Severe erysipelatous inflammation extended over the fingers, hand, and forearm. The finger on which the wound had been received presented a dark, livid appearance, evidently bordering on gangrene. This was probably due to the finger having been tightly bandaged at the seat of the wound for the first twenty-four hours, for the purpose of preventing hemorrhage. An abscess had formed, near the metacarpo-phalangeal joint, which was opened, giving exit to a considerable amount of pus, and affording marked relief to the patient. I ordered a poultice to be applied to the finger, iodine and acetate of lead to the hand and forearm, and quinia in full doses to be administered.

Erysipelas was at that time epidemic in the neighbourhood in which Mrs. O. resided. Malarial fever had also been rife there for a long time. Numerous pools of stagnant water, the receptacles of all the refuse materials of the neighbourhood, were situated in that locality.

I was informed by Mrs. O., that she had for some days expected her confinement, and wished to engage my services for that occasion. To this I assented, but with many and serious misgivings as to the result of her case. I warned my patient of the danger of any contact of the hands with the genital organs, and directed that the utmost care be taken to avoid such contact, and to obviate, so far as possible, any other medium of contagion. On the following day I found the patient with symptoms but slightly relieved. The abscess was discharging freely, the swelling of the hand and arm had diminished but little, the pulse continued at about 108 per minute, and the temperature, now for the first time noted, stood at 101° F. *No abdominal tenderness could at that time be detected.*

On the following morning, April 17, I was called to Mrs. O. and found her in labour. Slight pains had begun some three or four hours previously, when she noticed for the first time a decided tenderness over the abdomen. After a short and not unusually painful labour she was delivered of a large, healthy child. I noticed, on my arrival this morning, a marked subsidence of the erysipelatous symptoms about the hand and arm. The distal extremity of the finger was decidedly gangrenous, and a plain line of demarcation had formed around the finger at the seat of the wound.

At the close of labour the abdomen was exceedingly sensitive to the touch over its entire extent. So decided, at this time, was the peritoneal tenderness that the patient was unable to extend the lower limbs. Even the pressure of the bedclothes was complained of; the temperature was now 104° and the pulse 115 per minute; morphia in full doses was ordered in addition to the previous remedies.

On the following day, the inflammation of the hand and arm had almost disappeared. The patient complained less of abdominal tenderness (due, probably, to the morphia), had slept for several hours; slight lochial discharge continued, the temperature remained nearly the same as on the previous day and the pulse had increased to 120 per minute.

On the 19th, I found the pulse had risen to 130 per minute, and the temperature had advanced to 106°; slight delirium was noticed: otherwise little apparent change since previous day.

On the 20th a marked increase of all the previously noted abdominal symptoms was apparent. The pulse had increased to 150 per minute, and the temperature had risen to 108°, no secretion of milk had taken place, and the lochial discharge had disappeared.

On the 21st, the patient continued nearly the same as on previous day, showing, however, an increase of delirium and a diminution of vital power. The pulse and temperature continued at their former height, although the patient was bathed in a profuse perspiration.

On the morning of the 22d, I found her rapidly sinking—the pulse feeble and rapid—delirium, tending to stupor,—marked tympanites and a diminished temperature (103°) were the principal features noted. She died about noon; no autopsy was allowed. The child, when last heard from, remained well.

Although births were quite numerous in our city at about that time, I am not aware that any other case of puerperal peritonitis has recently occurred. I attended two other cases of childbirth during the time of attendance on Mrs. O. Both did well. I used extreme caution, however, in regard to the possible conveyance of the disease—making free use of carbolic acid, and even changing the clothes which I had worn on visiting my first patient before visiting the others.

It will be observed that a sudden recession of erysipelatous inflammation of the hand and arm, and as sudden a development of inflammation in the peritoneum, were synchronous events. Was not this a transposition or metastasis of erysipelas from the former to the latter organ? Whether it was really this, or whether the virus of erysipelas was conveyed to the abdominal cavity through the medium of the genital organs, it would be difficult in this case to determine with absolute certainty. The utmost caution, however, was taken to prevent the possibility of such conveyance of the virus. It is to be noted, too, that peritoneal inflammation was already developed at the beginning of labour. I could detect no evidence of inflammation of the uterus during labour. Its contractions, its sensibility, and its secretions at that time all seemed normal. As the lochial discharge occurred during the first twenty-four hours or more after delivery, and then ceased, it would seem as if the morbid action had extended from the peritoneum to the uterus, instead of taking the opposite course.

It is well known that a sudden recession of erysipelas of the face is occasionally followed by an equally sudden inflammation of the meninges of the brain or of the mucous lining of the air passages; thus proving that in the erratic shiftings of that disease it may fix alike upon the dermal, the mucous, or the serous tissues.

In view of all the facts of this case, I cannot resist the conclusion that the disease of which Mrs. O. died was a transposition of erysipelatous inflammation from the hand and arm to the abdominal cavity.

REVIEWS.

ART. XI.—*The Report of Columbia Hospital for Women and Lying-in Asylum, Washington, D. C.* By J. HARRY THOMPSON, A.M., M.D., Surgeon-in-Chief. With an Appendix. 4to. pp. 430. Washington: Government Printing-Office, 1873.

SINCE the close of our late war we have become accustomed to receive official medical publications from Washington. These are always welcome because the labours of Drs. Otis, Woodward, and Billings, of the Surgeon-General's Office, are acknowledged to add lustre to American medical literature. These officers are engaged in the National service, have devoted themselves to analyzing and drawing the deductions from observations made during the late unhappy contest, and it is proper that the results of their labours should be published by the Government and distributed as widely as possible among American medical men. Indeed it is a demand which science may legitimately make for the terrible and wanton sacrifice of human life upon many a bloody battle-field.

Before us is another candidate for professional favour from the city of Washington. It is the report of the Columbia Hospital, an institution of which we confess we knew nothing till this book was placed upon our table. It has been favoured by official patronage, and under the auspices of the Secretary of the Interior its report has been published and sent gratuitously to gynæcologists throughout the land. We are not told what claim the institution has upon the general Government, that our pliant Congressmen should have appropriated funds from the public treasury for its maintenance and the publication of its report in so costly a manner, and it would be of no little interest to learn what influences were brought to bear upon Congress to cause it to set apart a portion of the money in the nation's vaults for a hospital for lying-in women and for the relief of diseases peculiar to her sex. The gallantry of Congressmen has undoubtedly got the better of their judgment in this instance, and, no matter how laudable the object may be from a private point of view, the people have a just right to complain at this misuse of the public funds. Hospitals, because they are located in Washington, have no more right to Congressional support than those of Philadelphia, New York, Chicago, San Francisco, or New Orleans. If the principle which has operated in the present case is carried out in this age when so many worthy institutions are seeking aid, the national treasury will be rapidly depleted. But since this hospital is supported by, and its report published at the expense of, the public funds, and published in a style similar to that of the able circulars issued from the Surgeon-General's Office, the American professional public are naturally led to expect a production of more than ordinary merit.

The first part of the report, that pertaining to the *in* department of the Columbia Hospital, appears to have been written by Dr. J. H. Thompson, the Surgeon-in-Chief. It opens with an article on the operation for the cure

of ruptured perineum, giving the results of fifty-three cases, all of which were successful. So far as the paper is concerned, no new principles are inculcated, and Dr. Thompson's method of operating is essentially that of the late Mr. Baker Brown, of London. He, however, departs from the teachings of his master in the management of the sphincter ani, which he does not divide, "unless it has been torn through anteriorly." On the contrary, he adopts the plan of Van Buren, of New York, and paralyzes the muscle by introducing the thumbs into the anus and stretching it thoroughly. Instead of using pieces of bougie for quills, as directed by Mr. Brown, Dr. Thompson employs hard rubber tubes, perforated at intervals for the reception of the wires. These are minor changes, and it is not worth while to discuss their merits; but it is questionable whether this plan is preferable to the simpler one recommended by Dr. Agnew (*Pennsylvania Hosp. Reps.*, 1868, vol. i. p. 36), with whose papers the author does not seem to be familiar.

Dr. Thompson coaptates the parts by tightening the middle suture first and afterwards those towards the anus; lastly, those next the fourchette. Prof. Agnew, whose important papers on this subject leave little more to be desired, insists (*American Supplement to Obstetrical Journal of Great Britain and Ireland*, June, 1873, p. 33) upon the importance of tightening the anal suture first and approximating the parts from behind forwards.

In relation to after-treatment, Dr. Thompson differs from many surgeons of the present day in eschewing the use of opium to keep the bowels constipated. On the contrary, he keeps the discharges soft and secures a passage every day. Several years have passed since the writer began to question the propriety of administering opium after operations on the female genital organs, and a remark of Mr. Spencer Wells (*Diseases of the Ovaries*, London, 1865, p. 31) in relation to its use in cases of ovariotomy confirmed this opinion. The writer believes that he has seen operations fail several times, because the opium given deranged the patient's digestion and induced a condition of system which was not favourable to the repair of local injuries.

In regard to the causes of rupture of the perineum Dr. Thompson adds nothing to our knowledge, nor does he give much prominence to any special cause. If importance is attached to any, it appears to be the forceps. As a hearty admirer of this instrument, we are glad to see that he has qualified what he has to say by employing the words, "unskilful use of the forceps." This is wise, for when properly applied, these prevent and do not cause rupture of the perineum. Properly used they give the accoucheur complete control of the descending head, and in the hands of a skilful operator, danger of injury to the perineum would be an indication for their application. Of much greater importance is "unusual width of the child's shoulders in proportion to the size of the head." Dr. Thompson would have done well to have laid stress upon this cause, which is dismissed with the words just quoted. Our own observation in hospital and in private practice has led to the conclusion that the integrity of the perineum is much more frequently destroyed during the birth of the shoulders than the head. This does not always depend upon "unusual width of the shoulders in proportion to the size of the head," but upon the inattention of the accoucheur, who, knowing the danger, has carefully watched the painful throes attending the birth of the head, and who, as is not unnatural, has relaxed his watchfulness during the few suc-

ceeding moments, in consequence of which, he is surprised by a sudden uterine contraction which drives the body into the world before the shoulders have rotated properly. The danger at this stage of labour might have been more strongly insisted upon, especially as it is by no means so generally recognized as that attending the birth of the head.

The reports of the thirty-four cases of rupture that follow are fairly well written, but on the whole the paper adds but little to our knowledge upon this subject.

Dr. Thompson's second article is upon Vesico-Vaginal Fistula, and comprises eleven of his quarto pages. Four of these are occupied by the histories of two instructive cases, and the remainder is made up of quotations from well-known authors, and for the reproduction of which the overburdened tax-payers are compelled to pay. However, we have less right to complain in this than in other similar instances, for, in our opinion, the matter from the middle of the 45th to the bottom of the 52d page forms the most interesting portion of the book. It comprises the history of Sims's efforts to cure this dreadful lesion, as told by himself, before the New York Academy of Medicine, with wonderful power and thrilling interest. The history is probably without a parallel in the annals of surgery, but it is questionable whether the American public should be taxed to secure its gratuitous distribution.

In this article Dr. Thompson has committed a remarkable error. On page 45 he states that prior to Dr. Sims's operations for vesico-vaginal fistula "there was no record of a single successful case," thus showing that he is not familiar with the work of his own countrymen. In addition to other cases he has overlooked those of Hayward (*Amer. Journ. Med. Sciences*, August, 1839, p. 283, and *Boston Med. and Surg. Journ.*, April 16, 1851), Mettauer (*Amer. Journ. Med. Sciences*, July, 1847, p. 117), Pancoast (*Medical Examiner*, May, 1847), and Smith, of Philadelphia (*Ibid.*, 1849, p. 155). This omission appears more strange because Dr. Thompson quotes Sims's original paper (*Amer. Journ. Med. Sciences*, Jan. 1852, p. 59), in which that author gives due credit to his countrymen Hayward and Mettauer.

Our author next treats of Vaginal Rectocele (p. 57), claiming that the disease can be radically cured only by an operation. Dr. Thompson differs materially from Sims and Emmet in his mode of operating, since he removes the vaginal mucous membrane between the points which he wishes to attach. He places his patient in the ordinary lithotomy position, makes an incision through the mucous membrane of the vagina, and then dissects this up on either side by inserting a steel director beneath it. The redundant tissue is then removed and the cut edges brought together with sutures. The reviewer has no doubt whatever that this is a great improvement upon the plan pursued by Sims, by whose method he has never succeeded in obtaining union, though he has performed the operation a number of times, while by removing the whole of the redundant mucous membrane, —whether the case be one of rectocele or cystocele—and approximating the edges prompt union is almost certain to follow.

The cases of Rectocele are clearly related, but none of them possess any peculiar interest. Every gynæcologist in active practice meets with numbers of such, the records of which he does not think of sufficient interest to publish either in a medical journal or a volume of hospital reports.

The paper on Cystocele possesses no special interest, as it records no new facts and contains no new suggestions for treatment.

We now reach the section on the "Diseases and Displacements of the Uterus." (p. 70.) In the preliminary remarks upon "prolapsus uteri, complete and incomplete," there is not much to either praise or criticize. Speaking of the powers which maintain the uterus in position, no place has been given to what Dr. Matthews Duncan calls the "retentive power" of the abdomen. (*Researches in Obstetrics*, Edinburgh, 1868, p. 409.) Probably Dr. Thompson attaches no importance to this force, an inference justified by the fact that there is no recognition of the principle in the treatment of his cases. This we think is unfortunate, as attention to Dr. Duncan's suggestion facilitates the treatment of all uterine displacements.

Dr. Thompson makes some judicious remarks (pages 72–3) upon constipation as a cause of prolapsus uteri, and they might have been extended with propriety. He says that "the sigmoid flexure of the colon and upper part of the rectum become filled and gradually distended, forming a tumour which presses the uterus downward, backward, and to the right. Cathartic medicines (which are generally given in these cases) cause violent expulsive efforts on the part of the intestines, assisted by the diaphragm and abdominal muscles, tending to aggravate the uterine displacement by the increased pressure." He then goes on to speak of congestion of the uterus, but gives it no prominence. That prolapsus and other displacements may have this mechanical origin—that is, that the uterus may be pushed into an abnormal position by an overcharged bowel—we will not deny, but we think that the author would have done well had he attached more importance to congestion with consequent irritation, enlargement, and displacement of the uterus as a result of chronic constipation. That irregularity of the bowels should frequently be the starting-point of uterine disorders is easily explained. The connection between the vessels of the uterus, the hemorrhoidal veins, and the great portal circle furnishes a ready explanation of the association of the two conditions, which did not escape the notice of Simpson, who says (*Obstet. Memoirs*, Phila. 1856, vol. i. p. 53), that "the secretion of the liver and the menstrual flow seem to be almost vicarious of each other," and of Lane, who wrote a work upon this subject in 1848. Chronic constipation, by interfering mechanically with the circulation of the uterus, may induce congestion, then hypertrophy, and finally, it may be, inflammatory changes and displacements, either prolapsus, version, or flexion. We have in this a most important therapeutical principle which it is to be feared is not sufficiently recognized. The importance of keeping the bowels free to prevent certain uterine diseases, and to aid in their cure when they have set in, cannot be too strongly insisted upon.

Speaking of the treatment of prolapsus uteri, Dr. Thompson says (page 76): "Pessaries as a means of cure are worse than useless." It must be remembered that he is now speaking of the worst cases of the displacement, and as regards these the statement is in the main correct. But when the displacement is not so great, a pessary may be an important aid in effecting even a radical cure. In those cases in which the descent of the organ has followed congestion, its elevation by a properly adjusted pessary will often greatly aid in the treatment. The disposition of gynæcologists is either to rely upon these agents exclusively, or to discard them altogether. Dr. Thompson seems to be one of the latter class, for we can find no mention of their use among the histories of his cases. Both courses are equally objectionable. The truth is here, as in many other cases, in the middle ground. We are not a strong advocate for the use of pessaries, being fully convinced that they often do more harm than good;

but when employed to correct a malposition and thereby restore impeded circulation, and when used as an adjuvant to local treatment, they become important agents for the relief of some of the diseases peculiar to women.

Dr. Thompson's method of operating for the relief of procidentia of the uterus differs somewhat from that of Prof. Braun of Vienna, as described by himself (*Wiener Med. Wochenschrift*, Nos. 31 and 32, 1859) and by Dr. Munde (*Am. Journ. of Obstet.*, Nov. 1871, p. 385). Braun removes elliptical folds from either the anterior or posterior walls of the vagina, or from both, at the same time that he amputates the vaginal part of the cervix of the enlarged uterus. Dr. Thompson (page 77) "amputates the cervix and allows the parts to recover before reducing the procidentia." He says, "that this is safer, being less likely to be followed by acute inflammation of the body, or peritoneum, which sometimes follows the simple reduction without any other interference with the parts." In taking this course the author has laid himself open to serious criticism. He says nothing of the importance of preparing the tissues before operating, upon which Braun insists. These are usually hard and much altered by friction and prolonged exposure to the air. If the procidentia is kept reduced for a few days, the ordinary characters of mucous membrane are restored, the vaginal walls becoming soft and supple through relief to the obstructed circulation. Certainly it is best to operate upon tissues which are as healthy as they can possibly be made, and not upon those which are hard, horny, and irritated from friction, exposure, and abnormal position. The object of amputation of the cervix offers another reason for reducing the procidentia after the operation is performed. The juxtaposition of the cervix to the bladder in front and the rectum behind, with the fact that in many of these cases the vaginal wall is attached to the lowest portion of the uterine neck, precludes the possibility of relieving the hypertrophy by amputating any considerable portion of the cervix. Even by including a part of the anterior vaginal wall, but a small part of the diseased tissues can be removed. Hence the surgeon has to rely upon other agencies which he calls into play by his operation. The improvement in the condition of the uterus is chiefly due to the inflammation which is induced, which in some way stimulates the absorbents, leads to removal of the diseased tissues, and consequent diminution in the size of the offending organ. This being the case, the plan of Dr. Thompson is open to serious objection, since by leaving the procidentia unreduced he fails to obtain an aid of which he might avail himself by removing the impediment to the circulation by restoring the uterus to its natural position after amputation of the cervix. The principle is very important in the management of uterine displacements, either originating in inflammation or producing it consecutively. We have ourselves followed Braun, and after removing a portion of the hypertrophied cervix replaced the prolapsed uterus and maintained it as nearly as possible in the natural position by tamponing the vagina with pledgets of cotton soaked in glycerine.

Dr. Thompson's objection that this course is more likely to result in inflammation both of the uterus and peritoneum is hardly valid. We are perfectly aware that the simple reduction of a long standing procidentia may be followed by serious symptoms and even by pelvic peritonitis; but this does not invalidate the position which we have taken. Certainly removing the congestion of the uterus by restoring its position will tend to prevent, not produce, inflammation, while the danger of this supervening after the operation, and producing adhesions with the uterus still out-

side of the body, is too serious to be assumed lightly, since it is a demonstrated fact, that any inflammation of the cervix, body, or lining membrane of the uterus, whether it occurs spontaneously or is induced by an operation, is likely to be followed by pelvic peritonitis and its consequences.

The reports of a number of cases of prolapsus and procidentia are given. It would have been better if these had been more full. It is interesting to know how rapidly absorption and consequent diminution in the length of the cavity of the uterus go on after amputation of the cervix, but Dr. Thompson's records do not furnish the data by which this can be ascertained. His fifth case of prolapsus (page 82) is very interesting on account of the remedies employed. "Subcutaneous" injections of strychnia thrown *into the vaginal walls* are stated to have "acted like a charm;" the absorbents of the uterus being stimulated to increased activity, so that at the expiration of seventeen weeks the patient was "perfectly cured without any surgical application." This application of strychnia, so far as we know, is original, and from the result obtained appears to be worthy of a trial in similar cases.

Uterine tumours are discussed on page 91, and one of the cases (page 96) teaches a very important lesson. Pelvic peritonitis and metritis resulting in death followed the use of a sponge tent, employed to examine a myo-fibroma of the uterus. Again, on page 102 is the history of a case in which tetanus supervened after the use of this same agent. These facts very justly lead the author to assert that sponge tents "are by no means the simple agents they are generally supposed to be. Like other potent remedies, they should be used with great care and circumspection" While we most cordially agree with this caution, having learned from bitter experience the accidents that sometimes follow their use, we cannot support the author in the measures by which he proposes to prevent them. He writes (page 104) that he has been induced "in all cases where the employment of a sea-tangle or sponge tent is indicated, first, to divide the fibres around the internal os," since which, he says, he has seen no trouble following their use. We are not told how long this plan has been pursued, nor in how many cases it has been adopted, but we cannot help regarding it as a most reprehensible procedure. Gynæcologists whose experience has made them aware of these dangers, seek to avoid them not by still more irritating methods, but by properly preparing their patients before the introduction of the tent and sedulously watching them afterwards. We have never tried Dr. Thompson's plan, and after having seen pelvic peritonitis follow the introduction of the uterine sound—apparently having the relation of cause and effect—shall not feel inclined to do so until the author has more carefully recorded his facts.

Subinvolution of the uterus is next considered, and then follows a long paper upon cancer of the uterus and mamma. This is largely made up of quotations from the writings of various authors from Hippocrates to Woodward. Desiring to deal chiefly with the author's own views, there is but little to examine. Dr. Thompson attempts to revive the old doctrine that cancer of the uterus has its origin in previous inflammation of the organ, a view to which Dr. Noeggerath has also recently attempted to give some prominence. (*Am. Journ. of Obstetrics*, vol. ii. pp. 505, 610.) We cannot see that our author has proved his position, which is at variance with the opinion of most authoritative gynæcologists. This question is important since it leads our author, who seems to have no dread of heroic measures, to suggest operative interference for the

prevention of cancer of the uterus. On page 154 he says: "If chronic inflammation of the cervix in some constitutions results in carcinoma, will it not be good practice to amputate the cervix whenever the disease is found intractable to ordinary remedial measures? Why not give the patient the security which this operation affords?" It is further stated that the procedure is devoid of any special danger, and that "quite a large majority of these cases of chronic cervical metritis are incurable by any other means." Both of these propositions are to be combated. That a large majority of cases of inflammation of the uterus are incurable by much milder remedies than amputation of the cervix, we cannot forbear denying. We dread this much less than many other disorders of females, and cannot but suspect that Dr. Thompson has erred in diagnosis, or that he has not continued his treatment long enough to effect the desired result. No matter how long simple inflammatory disease has existed, nor how severe it may be, we always have a hope of curing it, if it has not resulted in serious flexions, and indeed we have often been surprised at the rapidity with which an indurated and enlarged cervix would soften and diminish in size when we had perfect control of our patients, as the author has of his, in hospital wards. Moreover, no operation upon the uterus is entirely devoid of danger, and even though a woman may suffer greatly—though you may think she is in danger, at some remote period, of being attacked by a disease which will inevitably destroy her life, it is a very serious matter to insist upon performing an operation which may produce death in a very short time. It is also to be remembered that in chronic inflammation, as in hypertrophic enlargement of its supravaginal portion, and in procidentia of the uterus, amputation of the cervix probably does good through the nutritive changes which it induces, and not because a considerable portion of the diseased tissues can be removed. If, as seems probable, inflammation is the agent which effects these alterations, is it not fair to conclude that the induction of this in some less bold manner will be just as beneficial? We think we have found it so, and cannot but believe that the cases of uncomplicated chronic uterine inflammation, in which such heroic interference is demanded, must be very rare.

In relation to the treatment of cancer when the disease is "confined to the vaginal portion of the cervix, and the contiguous tissues are not implicated," removing as much tissue as possible, "without endangering the peritoneal cavity," is recommended (p. 153). We wish that the author had told us how often he had met with cancer in this incipient stage. For our own part we confess—after considerable observation, in which a good deal of attention has been given to this subject—that, with the exception of cauliflower excrescence, we are utterly unable to diagnosticate non-ulcerated cancer, until the contiguous tissues are implicated It is greatly to be regretted that the powers of some persons are so limited, but we hesitate less in making this acknowledgment when we remember Dr. J. Henry Bennett's criticism of Ashwell's cases (*Practical Treatise on Inflammation of the Uterus, etc.*, Phila., 1864, p. 423); the discussion of Dr. Wynn Williams's cures of this disease by injecting solutions of bromine into the substance of the uterus (*Trans. Obstet. Soc. of London*, 1871, vol. xii. p. 249); and the distinct statement of Prof. T. Gaillard Thomas, of New York, that he has seen but one case of non-ulcerated cancer, and "in that the diagnosis was made by the peculiar hard nodular feel of the cervix, and by the coincident implication of the vagina. Without vaginal implication," he says (*Practical Treatise on the Diseases of Women*, 2d ed., Phila., 1869, p.

444), "I should have hesitated in arriving at a positive diagnosis, and I feel sure that he who ventures upon a decision as to the nature of the disease at this period must expose himself to great risk of error." Authorities might be multiplied, but it is unnecessary. If Dr. Thompson is in possession of any information which enables him to diagnosticate this disease at this early period, it is due the profession and suffering women that it should be made known at once. If he has not, we cannot but conclude that he has mistaken chronic inflammatory enlargement for carcinoma.

Our author removes the cervix, with a pair of strong blunt-pointed scissors, having previously seized it by a strong volsella, and made "sufficient traction to bring it fairly within reach." (p. 153.) He claims that the écraseur is dangerous, as too much tissue may be dragged within its grasp. He does not seem to be familiar with the instrument devised by Dr. J. Braxton Hicks, for operations on this part (*Guy's Hospital Reports*, vol. vii., 3d series, p. 252). The objections to the chain écraseur do not apply to this, for its flexible wire can be applied anywhere in the cavity of the vagina, so that the operator is enabled to remove the diseased mass with the uterus *in situ*. This it seems to us is an important consideration, for, as Dr. Hicks pointed out in 1866 (*Guy's Hospital Reports*, 3d series, vol. xii. p. 370), adhesions between the body of the uterus and adjoining organs may be broken, and since pelvic peritonitis is an ordinary complication of uterine cancer, it is best to entirely avoid this danger, as well as the shock which sometimes follows dragging the uterus down.

The objection made by Dr. Thompson, that the peritoneal cavity may be opened, has but little force, if the operation is properly performed. The wire should be applied at the attachment of the vagina and cervix, and the instrument kept well up while the screw is tightened. If this be done, there is no danger of opening the peritoneal cavity, while the objection which the author makes to the chain instrument is an advantage in this one, for it will drag in the largest quantity of tissue that can be safely removed, while it effectually prevents either primary or secondary hemorrhage; to the latter of which the woman is liable for several days, if the cervix is amputated with the scissors.

Nothing is said of the treatment of uterine cancer by scraping away the diseased tissue; a plan which has recently been recommended by Prof. Simon of Heidelberg, and described by Dr. Munde of New York. (*Am. Journ. Obstet.*, Aug. 1872, p. 309.)

Then follow papers upon "diseases of the vagina and cervix uteri," and "chronic cervical metritis and endometritis." The former is chiefly remarkable for illustrating Dr. Thompson's singular disposition to make long quotations. Tyler Smith is laid under obligation most extensively in this chapter. The second, on chronic cervical metritis and endometritis, is of inferior merit. The cases are of ordinary interest, and the remarks upon the disease contain nothing not well known to the profession. The description of the disease is vague and imperfect, and the rules for treatment are not what we should expect from a hospital physician and a clinical teacher in the College of Obstetrics and Gynæcology, Washington, D. C.

On page 199, a case of chronic cervicitis is related. The cervix was two and a half inches long. This is evidently the hypertrophic élongement of the cervix described by Huguier and others, and should have been included in another category. The cervix was very properly amputated, but the same cannot be said for the operation in the next case (p. 200); a patient who was admitted on May 9th, with the "cervix hypertrophied and

the portions around the os of stony hardness." Consistent with his theory, that this was "a case to invite malignant disease," the cervix was removed on May 11th. These are all the indications that are mentioned for this operation. Certainly such cases should be fully and succinctly related, and the profession furnished with details which will enable them to determine what degree of hypertrophy warrants this form of surgical interference. As this history is related, we cannot but believe that most physicians would have relieved the patient, not sooner probably, but by less heroic means.

We are next favoured with the history of a patient from whose bladder an iron crochet needle was removed. The case is interesting, and resembles one reported by Dr. T. G. Morton (*Pennsylvania Hospital Reports*, 1869, vol. ii. p. 46), and which, with all his fondness for quotations, Dr. Thompson does not notice, though he favours us with no less than thirteen consecutive pages from Morgagni.

What possible reason there is to include an account of an operation for extirpation of the parotid gland in the report of a hospital for parturient women, and for diseases peculiar to their sex, we cannot tell. Nevertheless such a case is related, as well as the history of the "successful removal of an hypertrophied third lobe of a thyroid gland."

The history of a case of impacted feces mistaken for an ovarian tumor, a paper on pelvic cellulitis, and some remarks upon diseases of the rectum, close Dr. Thompson's portion of the Columbia Hospital Report.

These papers of Dr. Thompson are illustrated, and we cannot pass over this part of the work without saying something about the figures. They in no way add to the attractiveness of the report, and certainly will not increase the reputation of Washington artists. Dr. Thompson has not only copied many of his illustrations, but in some cases has failed to give credit to their authors. Figure 2 of Plate I. bears a striking resemblance to one of Mr. Baker Brown's plates, but Dr. T. has more than copied the faults of his predecessor. The genital organs of Washington females must be most peculiarly constructed if their vaginal walls are as angular as represented in the wood-cut. After Parvin's criticism (*Am. Practitioner*, 1873) of Baker Brown and his copyists, we had hoped that no American writer would be guilty of committing similar errors, but here is one which has far outstripped the blunders of his predecessors.

In the chapter on "Diseases of the Vagina and Cervix Uteri," the illustrations, like a large portion of the text, are from Tyler Smith's work on Leucorrhœa, but the former are inserted in such a way as to mislead the reader into the impression that they are original. However, there is good reason to conclude that any author, whose plates are thus appropriated, will not complain that they are unacknowledged, for Plate VII., page 77, is said to be from Savage. If this report meets the eye of the author of the magnificent work *On the Surgery of the Female Pelvic Organs*, he will certainly fail to recognize his own production, so marvellously has it changed under the copyist's hand. In view of this fact we shall say nothing of certain other remarkable pictorial productions to be met with in the work.

We now come to the consideration of the second portion of the volume, the Appendix, the first part of which is a report on the Department for Diseases of Females at the Columbia Hospital Dispensary. This is written by Dr. F. A. Ashford, and is by far the most interesting and important part of the work. The author is evidently a most painstaking and careful

writer, and his report has a freshness about it, because it is, in the main, composed of his own observations. These, it is true, may not be original, but the analysis of any series of carefully observed cases is important, especially when the author, as in this instance, uses his experience to reiterate important rules of treatment.

The report of Dr. Ashford opens with a tabulated statement of 1612 cases, which have been treated at this dispensary. Comparison of this table with one recently published by Hewitt of London (*Diseases of Women*, Philadelphia, 1873), furnishes some striking results. Out of 1205 cases analyzed by the latter writer, no less than 296 were versions and flexions, of which there were 184 cases of anterior and 112 of posterior displacement. Dr. Ashford, however, met with only 50 cases of version and flexion, of which 20 were anterior and 30 were posterior. This discrepancy is very striking, and is difficult to account for, since a reference to the text of Dr. Ashford's paper shows that he is fully aware of the importance of these displacements. Dr. Hewitt has, we think, overestimated their frequency and importance, while Dr. Ashford probably does not give them a sufficiently prominent place.

We next have a report on metritis. Two very interesting cases of acute inflammation of the uterus are related. Both resulted from direct injury to the organ from attempts to produce abortion, though neither patient was pregnant. In both instances the injuries were self-inflicted. In the first, abscess of the uterine wall occurred, and was opened with a bistoury, the only example of this very rare lesion which Dr. Ashford has met with in 2500 cases of diseases peculiar to women. The second patient passed a sharpened piece of whalebone into the vagina, and thrust it through the anterior lip of the cervix just at its vaginal attachment. It passed upward and backward into the cavity of the uterus. The remarks which follow upon the treatment of this disease, the great necessity for care to prevent chronic inflammatory disease, and on the rarity of acute metritis are judicious and will well repay perusal.

Dr. Ashford's analysis of the cases of chronic metritis which have come under his care is of great interest. He very properly insists upon the need of care in examining the patient, and from his practical experience reasserts the value of the bimanual method of examining the uterus. This may hardly seem necessary to some, but when it is remembered that resort to it is frequently neglected, the plain forcible way in which the author states the results of his experience will not be without good results.

The most important part of his paper on this disease relates to treatment. Dr. Ashford is a convert to the utility of sponge tents and intra-uterine injections, but he employs them with so much care that he does not seem to have been annoyed by unpleasant consequences He alludes to one case in which uterine colic followed a simple vaginal injection, in administering which he says, the nozzle of the syringe was inserted into the mouth of the uterus. This is not always necessary to produce these unpleasant symptoms We have twice seen it follow the use of simple vaginal injections for leucorrhœa, in which there was not the slightest reason to believe that the nozzle of the syringe had been inserted into the os uteri. In both cases the injection was used a day or two after the cessation of the menses. In one instance the symptoms were so serious as to threaten life. Dr. Ashford fully recognizes the dangers of intra-uterine injections unless the os is fully dilated, and free egress is allowed the injected fluid He sometimes employs Nott's canula (*Amer. Journ. of Obstetrics*, vol. ii.

p. 491), an instrument which possesses many advantages. We can bear testimony to its usefulness, having repeatedly employed it within the last few years without any untoward accident. The author's remarks upon this subject, though containing nothing absolutely new, are judicious, to the point, and well worthy of study.

Following Dr. Ashford's report is one from Dr. Samuel C. Busey upon the Department for Diseases of Children. The first paper, an interesting one, is upon intermittent fever. This is a subject of more importance than many seem willing to admit. There is no doubt that the disease may assume very peculiar forms, and be singularly masked in young children. We would have been glad if Dr. Busey had given us a full and succinct analysis of the symptoms in his cases at the Columbia Hospital. He does not refer to Dr. C. Hanfield Jones's interesting remarks upon what he calls "Malarioid Disease" in young children (*Studies on Functional Nervous Disorders*, London, 1870, p. 765), which some may think an overdrawn picture. This, however, is not true. Considerable experience has convinced us that, as in adults, the malarial poison may produce the most singular effects in children, and that in them it is particularly liable to be attended with severe nervous symptoms. Drs. Jones and Busey both speak of delirium and convulsions. Moreover the periodicity of the disease is not so perfectly developed as in adults. At the same time the affection may be immediately dangerous, and if not met promptly by proper treatment may quickly terminate in death, the child apparently perishing from grave cerebral disease; suddenly becoming pale, cold, and blue, but without a rigor it soon flushes and becomes stupid, with or without convulsions. The stupor is sometimes so profound that it is impossible to rouse the little patient. That this condition should be mistaken for an acute cerebral disease of such a character as to warrant the most grave prognosis is not surprising. But a few hours are sufficient to produce a surprising change. Perspiration occurs after a little time, and with it the stupor diminishes, so that towards morning the intelligence may be quite restored. Later in the day the paroxysm recurs, unless anti-periodics are administered in the intervals. It is easy to see that a condition such as that described may quickly prove fatal if not promptly treated.

Quinia is the specific, but here we must protest against the doses which Dr. Busey recommends. We are perfectly familiar with the fact that Binz and Jacobi have demonstrated, or rather reasserted Briquet's statement, that infants will bear large doses of this remedy. Practical experience has taught us the same thing, but it has not proved that these quantities of the drug are necessary or useful in intermittent fever. We can fully confirm the assertion of the able reviewer of this Report in the *Philadelphia Medical Times* (July 19, 1873, p. 669), who says that in the treatment of the malarial diseases of children it is not necessary to give a larger proportional dose than that prescribed for an adult. In the management of this disease in adults we have always tried to avoid giving more quinia than is really necessary to arrest it. We do not hesitate to say that two or four grains of the drug given between the paroxysms will as certainly arrest the disease in a child two or three years old as twenty grains will in an adult. That disproportional quantities will sometimes cinchonize them to their serious detriment, we think we have seen fully demonstrated.

The next article is entitled "Entero-colitis, Cholera infantum, Dysentery, and Dentitio difficilis." The author says (p. 321) that "to avoid confusion

and repetition" he has "associated these four allied disorders," between which, he adds, "all admit that clinically it is impossible to determine with accuracy the pathognomonic differences." And again he asks (p. 332), "Is not the distinction one of degree rather than of kind?" We might express our surprise at this question. The association of difficult dentition with the three intestinal diseases is peculiar, and no doubt arises from the fact that children are very liable to these affections of the bowels during the period when the teeth are making their appearance. But Dr. Busey himself very justly doubts whether the fourth is entitled to the distinction of being a distinct disease. We believe that it is not. Dentition is a purely physiological process, and is much less frequently attended with serious symptoms than is generally believed. We know that all of these disorders of the bowels, as well as many others, are frequently attributed to difficulty in cutting teeth, but we are satisfied that the assurance which many physicians give anxious mothers, that the symptoms which have alarmed them are due to teething, is but a cloak for their own ignorance. It is quite time for this bugbear of the nursery to be put among the things of the past, and for physicians to learn that the diseases of their little patients can only be understood by patient investigation. The more careful the examination the less frequently will the medical attendant find himself attributing diarrhœa, vomiting, convulsions, or paralysis to the influence of dentition, and the more frequently will he find other means to account for the conditions observed.

But is the distinction between entero-colitis, dysentery, and cholera infantum "one of degree rather than of kind?" We hardly know how to reply to such a question, but would ask in return whether the author considers diarrhœa, dysentery, and cholera morbus, or Asiatic cholera of adults a disease differing in "degree rather than in kind?" If he does, we might inquire whether he regards bronchitis, pneumonia, and phthisis to differ "in degree rather than in kind?"

The directions of Dr. Busey for the treatment of this disease are, in the main, judicious.

Following this is an interesting paper on "the value of certain drugs in the treatment of bronchitis," but we have not the space to analyze this, while we will not attempt to criticize the report of the Department for Diseases of the Eye and Ear, by Dr. D. W. Prentiss, which ends the volume.

In closing this review we must express our regret that the volume does not contain more matter worthy of praise; but with its long quotations and unacknowledged illustrations, it is probably the most notable example of book-making which has issued from the American press for a long time. It certainly will neither add to the reputation which the reports from the Surgeon-General's Office have achieved for the medical publications of the Government, nor give fame to the "College of Obstetrics and Gynæcology, Washington, D. C.," whose faculty is, for the most part, composed of the authors of this report, and whose advertisement has been circulated with it. The volume contains no information sufficient to make it desirable that the publication should be continued, even if we thought the support of such a hospital and the publication of its annual report by the Government justifiable under any circumstances.

J. S. P.

ART. XII.—*Contributions to Practical Surgery.* By GEORGE W. NORRIS, M.D., late Surgeon to the Pennsylvania Hospital, Vice-President of the College of Physicians of Philadelphia, Member of the Société Médicale d'Observation of Paris, etc. 8vo. pp. 318. Philadelphia: Lindsay & Blakiston, 1873.

ALTHOUGH for more than thirty years the name of NORRIS has been a household word with American surgeons, and indeed with surgeons in all parts of the civilized world in which the English language is either read or spoken, this is, we believe, the first occasion on which the distinguished author of the volume, the title of which is given above, has come before the public as the writer of a book. It must, we are sure, prove a source of great and sincere gratification to all lovers of the noble art which he has done so much to adorn, that Dr. Norris has at last brought together and placed in a permanent form the more important of those "contributions to practical surgery," which have made his name so familiar to all students of surgical science, and which, as they successively appeared (mainly in the pages of this Journal), tended to diffuse such uniformly sound and correct views upon the various important subjects of which they treated.

In his brief and modest preface, Dr. Norris tells us that several of the essays contained in his volume

> "have met with favourable notice abroad as well as at home, and have been freely made use of by later writers, in some instances with but slight notice of their sources. The statistical method of investigation at the time of their publication was something of a novelty in surgery, and was looked upon with suspicion, but it is now everywhere accepted as one of value in all departments of research."

We may add that, were all statistical investigations conducted with as much care and candor as those of the author, the numerical method would, probably, now be still more favourably regarded than it is.

The essays contained in the present volume are (1) On the occurrence of non-union after fractures;[1] (2) On the treatment of deformities following unsuccessfully treated fractures;[2] (3) Statistics of fractures and dislocations treated in the Pennsylvania Hospital during the twenty years from 1830 to 1850;[3] (4) On compound fractures; (5) Statistical account of the cases of amputation performed at the Pennsylvania Hospital from January 1, 1850, to January 1, 1860, with a general summary of the mortality following this operation in that institution for thirty years;[4] (6) Statistics of the mortality following the ligature of arteries, viz., the subclavian,[5] the iliac,[6] the carotid and innominate,[7] and the femoral;[8] and (7) an instructive case of varicose aneurism at the bend of the arm.[9] The paper on compound fractures is now published for the first time, while the essays on the occurrence of non-union after fractures and on the treatment of deformities after fractures have received very considerable additions, the new

[1] See No. of this Journal for Jan. 1842, p. 13. [2] Ibid., Oct. 1842, p. 305.
[3] Ibid., April, 1841, p. 324, and Oct. 1852, p. 301.
[4] Pennsylvania Hospital Reports, vol. i. p. 149.
[5] No. of this Journal for July, 1845, p. 13. [6] Ibid., Jan. 1847, p. 13.
[7] Ibid., July, 1847, p. 13. [8] Ibid., Oct. 1849, p. 313.
[9] Ibid., Jan. 1843, p. 27.

material in each constituting indeed rather more than one-fifth of the whole. The third paper, on the statistics of fractures and dislocations, has also been improved by the introduction of various illustrative cases, some hitherto unpublished and some extracted from other contributions of the author to this Journal.[1] The subjects which have been especially elaborated in the additions to this paper are fracture of the neck of the thigh-bone, dislocation of the astragalus, and dislocation of the shoulder complicated with fracture of the neck of the humerus. The statistics of amputation and of the ligature of arteries are pretty much reprints from the papers in which they first appeared, in the Pennsylvania Hospital Reports and in this Journal.

There is no occasion at this late date to offer any critical review of Dr. Norris's writings. They have long since become classical, and we think too highly of American surgeons not to believe that all are acquainted with these admirable contributions to surgical literature. We shall therefore do no more than call attention to some of the additions to the essays on ununited fracture and deformity resulting from fracture, and shall then briefly examine the newly published essay on compound fractures—an essay which, combining as it does the fruits of wide reading with the slowly acquired wisdom derived from practical experience, may well serve as a model of its kind.

The essay on the *Occurrence of Non-union after Fractures*, as originally published, has been justly characterized by Prof. Hamilton, of New York, as "the most complete and reliable monograph upon this subject contained in any language," and, with the valuable and extended additions now made to it by the author, is, we hardly need say, even more exhaustive and trustworthy than in its original shape. To some of these additions we will now refer:—

On page 10, is added a paragraph which draws more clearly than was done before the distinction between the existence of *delayed union* and the occurrence of true *ununited* or *disunited* fracture. On page 14, the account of Duhamel's and of Haller's experiments is supplemented by a statement of the views of Bordenave and of Macdonald; and on pages 19 *et seq.*, suitable reference is made to the modern teachings of Virchow, Foerster, Rindfleisch, Billroth, and Gurlt, essentially confirming the doctrines of Dupuytren, as well as to the opposing views which have of late years been promulgated by Paget and Hamilton. In the pages devoted to the consideration of the *causes* of ununited fracture, additional illustrations are given of the influence in this respect of cancer, of general impoverishment of the system from starvation or deprivation of an accustomed stimulus, of paralysis, of undue motion of the part, etc. Many additional examples are also given of the existence of ununited fracture in persons who were yet able to make great use of their injured limbs, but, as might be expected, the most important interpolations are in that portion of the essay which is devoted to the subject of the *treatment* of false joint.

Under the heading of *friction*, the credit of having been the first to employ an external support while allowing the patient to use the limb, so as by the "stimulus of exercise" to lead to the formation of callus, is given to White, of Manchester, who thus successfully treated an ununited fracture of the thigh in 1768. Similar contrivances have been since resorted to by Inglis, by Troschel, by Prof. Smith, of this city, and by other surgeons.

[1] Ibid., Aug. 1837, p. 378, and Jan. 1843, p. 13.

The first suggestion of the *seton* as a means of treating ununited fracture has been, as is well known, often attributed to Winslow; but Dr. Norris has been able, by referring to the original memoir written by that surgeon, to determine that it was in a case of necrosis and not of false joint, that he used the seton, and that the credit of having been the first to employ it in the management of pseudarthrosis is rightly due to our own Physick.

Full and fair accounts are given of the methods of treatment introduced by Dieffenbach, Brainard, Miller, Jordan, Ollier, and Bigelow, and indeed everything of real importance in the recent literature of his subject has received Dr. Norris's careful attention.

The most important additions to the essay on the *Treatment of Deformities following Fractures* consist of further illustrations of the practice of rupturing the callus, and accounts of the operative measures which have been employed by Josse, of Amiens, Rynd, of Dublin, Brainard, of Chicago, and various other surgeons.

In the essay on *Compound Fractures*, Dr. Norris points out the much more serious character of those cases in which the wound is produced by external violence, than of those in which the laceration of the soft parts is due to the protrusion of the broken bone :—

"In the first of these classes the wound is generally large and accompanied with great laceration, the bone being often comminuted, and the case altogether one of the most serious kind; but in the second class the external injury is mostly of small extent, and no other parts are injured than those with which the bone comes in contact—union of the wound by the first intention frequently follows, and, even if this desirable event is not obtained, it is soon covered by granulations which speedily cicatrize."

The influence on the progress of the case of the age, habits, and constitution of the patient, and of the season of the year at which the accident occurs, are duly considered, and the increased risk when the seat of fracture is near a large joint clearly pointed out :—

"In making a prognosis, too, it is of importance to consider the limb affected . . . . . and as a general rule it may be stated that the nearer the fracture be to the trunk, the greater the risk incurred by the patient. In the country, or in private practice, the chances of saving a limb in these accidents is always greater than in large cities or in hospitals. In civil hospital practice, compound fractures of the arm and forearm generally do well; in the leg, under the same circumstances, where an attempt is judged proper to save the limb, the accident is more serious, and a number must either suffer secondary amputation or die, and in the femur the majority of adults will not survive them."

Dr. Norris believes that with the exception of such as are produced by railway and machinery accidents, the compound fractures met with in civil life are less dangerous than those which are due to gunshot injury, and quotes with approval the saying of Dupuytren, viz., "on one point my opinion is unchangeable. In rejecting amputation in them [gunshot fractures] more lives are lost than limbs saved." In considering what cases of compound fracture demand immediate amputation, Dr. Norris justly insists upon the importance of regarding the age, habits, and constitution of the patient, as well as the degree of care and attention which he can command during the course of treatment. Thus amputation might be properly performed in the case of an old, feeble, or intemperate person, or of one who was to be treated in a crowded hospital or to be transported a considerable distance from the place at which the injury was received, when the same operation would be quite unnecessary in the case of a young

and healthy subject, or of one who lived in the country or who could be nursed in a pure and uncontaminated atmosphere. The *local* conditions which indicate amputation are stated by Dr. Norris as follows:—

"1st. Where the bone is comminuted, and the soft parts so much contused, lacerated, or destroyed as to make it evident that gangrene must follow.

"2d. Where the bone is fractured and a portion of the limb torn off by machinery, the bursting of a gun, a cannon shot, or the passage over the part of a railroad car.

"3d. Where the laceration of the soft parts around the fracture is very extensive or extending into a large joint, even though the bone be not comminuted.

"4th. Where the fracture, though accompanied with but little laceration, extends through the head of a bone into a large joint, as the knee or shoulder. [This rule is subsequently qualified by the statement that in suitable cases, at least in the shoulder, elbow, and hip, excision should be preferred to amputation.]

"5th. Where the bone is fractured in more than one point and accompanied with great laceration and contusion of the surrounding parts, or in cases where the bone is extensively exposed with the soft part separated from it, especially if the fracture be in the neighbourhood of an important articulation, and has been produced by the application of direct force.

"6th. In cases where the injury is not so extensive as in the instances mentioned, but is accompanied with the division of the principal artery and nerves, for though neither the division of the vessel, the laceration, nor the fracture may alone justify the removal of the limb, yet the whole together will frequently make it necessary."

Dr. Norris is in no degree an advocate of indiscriminate amputation, and justly remarks that the risk of the operation itself should be duly considered in every case—

"Since it by no means follows, as many seem to think, where these accidents terminate fatally in our attempts to save them, that life would have been preserved had the operation been done, . . . another cogent reason for giving to the patient the benefit of even the slightest rational doubt in determining upon the question of amputation."

These remarks of course apply rather to civil than to military practice; for in the latter, unfortunately, the exigencies of war often render it imperative to make amputation the rule, and an attempt at conservation the exception.

When it is determined in a case of compound fracture, to make an attempt to save the limb, the surgeon's first care should be given to the arrest of *hemorrhage*. If this be arterial, a tourniquet may be applied, but only temporarily, and every bleeding vessel should be carefully secured, both ends being tied if the vessel be of large size. Venous hemorrhage may be controlled by rest and position, aided if necessary by the application of cold and moderate compression. *Foreign bodies*, including particles of dirt, shreds of clothing, and fragments of bone which are entirely detached, are next to be searched for with the finger and carefully removed, and the fracture should then be at once *reduced*, not however by the sudden application of force alone, but by moderate and gradual extension, aided if necessary by enlarging the wound or removing the protruding end of the broken bone. The latter measure, though very seldom called for, is regarded by Dr. Norris as a legitimate resource in cases in which the fracture is otherwise irreducible. Recurrence of displacement is to be prevented by placing the limb in a proper position and by giving support "without the aid of tight bandages or great pressure."

As regards *position*, Dr. Norris expresses a decided preference, in the case of the lower extremity, for the plan of extending the limb,

"inasmuch as it is easier for the patient, as well as his attendants, and permits of less disturbance of the fragments, while its results are fully equal to any that can be attained by the position of Pott, or the semi-flexion of the knee with the patient on his back."

In the case of the upper extremity, Dr. Norris directs that the part should be fixed on suitable splints, and the patient kept in bed with the limb supported on a pillow till after the subsidence of fever, when he may be allowed to move about with the part sustained by a sling.

"The important requisites for treating fractures successfully are coaptation and immobility, and in my judgment it matters little what particular apparatus is employed, provided it be made to fulfil these indications, and keep the limb quiet and firm, and admit of the dressings being removed and reapplied without giving pain to the patient, or moving the fragments. The simpler the appliances the better."

When the laceration in the soft parts has been made by the protrusion of the bone, an attempt may be made to convert the case into one of simple fracture, by bringing the edges of the wound together with strips of adhesive plaster, and afterwards applying a many-tailed bandage, or by adopting the old plan of imbuing a piece of lint in blood and allowing it to dry over the injured part. The lightest dressings only should be employed in warm weather, and in winter soft poultices or lint wet with tepid water. Dr. Norris's experience has not led him to look upon well-made poultices with the aversion professed towards them by many modern writers. In case of profuse suppuration, or of troublesome venous or capillary hemorrhage, the bran dressing is recommended; it is particularly useful in summer by hindering the deposit of the ova of flies, and by preventing in a great degree the odor that would otherwise arise from the wound. It may be supplemented by the addition of an ice-bag laid over the surface. Irrigation is sometimes of service in hot weather, in the early stages of compound fractures which are attended with great laceration and contusion of the soft parts, but its indiscriminate use is condemned by Dr. Norris, who believes that its employment favours attacks of inflammation of the respiratory organs.

We observe with satisfaction that Dr. Norris still stands firm, and has in no degree yielded to the prevailing epidemic fondness for the starched bandage and other forms of the "immovable apparatus:"—

"That this treatment," he says, "in compound fractures has been in very numerous cases followed with good effects by its introducer and his pupils, as well as by its more recent advocates, cannot be doubted, but the frequent occurrence of severe inflammation, abscesses, gangrene, and want of union, and where cures occur, the deformities seen in the hospital services in which it has been used, leads me here, as in simple fractures, to condemn its general employment. Its chief value is, I think, to be found in its adaptation to military surgery. In civil practice, it is particularly objectionable when placed upon the limb immediately after the occurrence of the accident."

During the early stages of a compound fracture, the dressings should be examined twice, and renewed once daily—and this as well as changing the bedclothes and body linen should invariably be done under the surgeon's personal supervision, and not entrusted to nurses or other unskilled attendants. In fractures of the lower extremity, the weight of the bedclothes should be kept from the foot by the use of a rack or cradle, and, when the leg is the affected part, the patient's comfort may often be pro-

moted by suspending the limb in a fracture-box or by means of a suitable splint.

The various *complications* of compound fracture are succinctly considered by Dr. Norris, the most important being rupture of a large vein, nerve, or artery, previous disease of the bone, and concomitant luxation. Bleeding from a ruptured *vein* can usually be controlled by cold and pressure, with elevation of the injured limb; laceration of *nerves*, when amputation is not required, calls for the application of warm fomentations or poultices, with the free use of opium; rupture of a large *artery* is a most serious complication, and will often necessitate removal of the limb, though if other circumstances are favourable an attempt may be made to save the part by tying both ends of the bleeding vessel, or if the source of hemorrhage cannot be found by securing the main trunk at a higher point. Amputation is usually necessary when a compound fracture occurs in a previously *carious* or *necrosed* bone. When *dislocation* occurs as a complication of compound fracture, every effort should be made to effect reduction before permanently putting up the broken bone.

Various secondary complications may arise during the treatment of a compound fracture. If the patient be attacked with *delirium tremens*, the wound should be closed with adhesive strips and compresses of soft lint or charpie, and then the whole limb enveloped in a large and well-stuffed pillow held in place with a roller bandage. *Retention of urine* is to be guarded against by the use of the catheter; *erysipelas* to be met with suitable constitutional treatment and mild local applications; and early and free counter openings to be made to evacuate *collections of matter* in the neighbourhood of the wound. The presence of *maggots* is to be avoided by attention to cleanliness and by careful dressing; when present they may be got rid of by washing the part with cold water or weak vinegar and water, or by dressing the wound with preparations of carbolic acid, or tar or creasote ointment. *Excoriations and bed-sores* may usually be prevented by careful dressing, by bathing the parts with whiskey or soap-liniment, and by relieving pressure by means of water-beds, air-cushions, soft pillows, etc., and by the application of kid spread with soap cerate. When bed-sores actually occur, they must be treated as sloughing sores met with under other circumstances. Other secondary complications of compound fractures are *tetanus* and *pyæmia*, of the latter of which affections Dr. Norris has given a very interesting account under the heading of *secondary inflammation and deposits of pus in distant parts*. Here is reproduced, with alterations and additions, the author's excellent chapter on the subject from his edition of Sir Wm. Fergusson's "System of Practical Surgery," a chapter which, apart from its intrinsic merits, possesses much historical interest, as having been one of the first to call the attention of American surgeons to the frequent occurrence and fatal character of this disease.

Not long since we noticed a communication to a foreign journal, deprecating the use of anodynes in surgical cases, and gravely maintaining that a sleepless night would do a patient less harm than a dose of opium; we are glad to observe that Dr. Norris gives no countenance to this, which we cannot hesitate to characterize as a most atrocious doctrine.

"Great benefit," he declares, "will be found to follow the free use of anodynes immediately after the occurrence of the accident, and their continuance, as well for the purpose of prolonging sleep as of assuaging pain and quieting the mind, is always proper. Long observation in hospitals has so convinced me

of the beneficial effects of anodynes after severe injuries, that I cannot too strongly recommend their judicious employment. No theoretical considerations should interfere with their use."

The concluding portion of the essay is devoted to an examination of the circumstances under which secondary amputation may become necessary. In cases of *traumatic gangrene*, though acknowledging that the question of immediate amputation is still an open one, Dr. Norris says that he has himself always waited for a line of demarcation to be formed, and that he has as yet seen nothing which would lead him to deviate from this practice. *Secondary hemorrhage*, which may follow the separation of sloughs or may result from the pressure of an edge of bone on an adjoining artery, often necessitates amputation, though in favourable cases Dr. Norris deems an effort to save the limb by securing the main artery justifiable. *Secondary implication of joints, non-union of the broken bones*, and *exhaustion from profuse suppuration*, are also circumstances each of which may occasionally render imperative a resort to amputation. Removal of the limb is also sometimes desired by the patient at a later period, on account of deformity, atrophy, liability to ulceration, etc. The surgeon should not under such circumstances at once consent to operate because his patient wishes him to do so, but

"must determine, by a careful examination of each individual case, whether the extent of disease, pain, incapacity for business, and inconvenience suffered, are sufficient to call for a resort to this extreme measure."

We cannot close this volume without congratulating the surgeons of America, and more especially of Philadelphia, upon its publication. PHYSICK, and quite recently BARTON—perhaps the brightest names in the annals of Philadelphia Surgery—have gone from us, leaving no record of their work save in old numbers of journals, or in the occasional references found in the writings of others; let us be thankful that in the pages of this volume there has been set up, while its distinguished author is still in our midst, an enduring monument which will worthily honour the name of NORRIS, so long as the Art of Healing itself shall survive.

J. A., JR.

ART. XIII.—*The Pathology, Diagnosis, and Treatment of Diseases of Women, including the Diagnosis of Pregnancy.* By GRAILY HEWITT, M.D. Lond., F.R.C.P., Professor of Midwifery and Diseases of Women, University College, and Obstetrical Physician to the Hospital, etc. etc. Second American from the third London edition, revised and enlarged. 8vo. pp xxii., 751. Philadelphia: Lindsay & Blakiston, 1872.

Clinical Lectures on Diseases Peculiar to Women. By LOMBE ATTHILL, M.D., University of Dublin, Obstetrical Physician to the Adelaide Hospital, Dublin, etc. etc. Second edition, revised and enlarged. 12mo. pp. xv., 241. Philadelphia: Lindsay & Blakiston, 1873.

THAT Dr. Hewitt's work has reached its third edition in England and its second in this country, fully attests its value, and shows that there is a demand for it by the profession. The same is true of Atthill's Clinical Lectures, the first edition of which was published in 1871, and shortly afterwards reissued in America, and now a year later a second edition is called for, and issued nearly simultaneously in both countries.

Dr. Hewitt's book has undergone radical alterations, both in its arrangement and in the doctrines which it advocates. The former was very desirable, as the author's plan detracted from the value of the book as a work of reference. This is, to a certain extent, true of the arrangement of the present edition, but it need not claim further attention.

Of much more importance is the change of doctrine which our author enunciates. For years past it has been too evident that the tendency of gynæcologists was towards a mechanical explanation and treatment of the diseases peculiar to women. That this is true, is proved by the innumerable varieties of instruments that form the armamentarium of him who practises this branch of our profession. With a host of specula and probes for their examination; with redressers, knives, scissors, tents, and numberless bandages; with pessaries, vaginal and intra-uterine, the gynæcologist has been moving about among his patients, and endeavouring to relieve their ills. If he has found his instruments insufficient, our author has added to his list, and if he wants support for his mechanical doctrines and treatment, our author furnishes it. Dr. Hewitt is a firm believer in the utility of pessaries, but in this it must be admitted that he is perfectly consistent, since he almost ignores the existence of any uterine disease excepting displacements. This constitutes the peculiarity of this edition of his book, and the reader cannot but be struck with the absence of anything in relation to inflammatory diseases. What he calls the mechanical system of uterine pathology is put forward earnestly, and urged by the author with all his force. The fact that this was not done until the book has reached the third edition, and that this opinion is based on "daily observation for four or six years past" (preface), makes it necessary for us to examine Dr. Hewitt's views somewhat critically.

He publishes in his first chapter an analysis of 813 cases (page 5) which came under his observation at the University College Hospital, from August, 1865, to December, 1869. Of these, 99 may properly be excluded from consideration, 60 being cases of pregnancy, and 39 being sufferers from "ailments or discomforts of pregnancy." Of the remaining 714 women, 377 were suffering from displacements. Of these, 184 were anteversions or flexions, 112 cases of retroflexion, and 81 had prolapsus, while inflammatory diseases of the uterus proper do not appear in the list. In other words, rather more than 50 per cent. of all the women who suffer from diseases peculiar to their sex are the victims of some form of displacement. Of these, according to our author, flexions and versions are the most important, there being 296 cases of these to 81 of "prolapsus of the uterus, vagina, etc." Inflammation of the organ is ignored, except as a consequence of these displacements, though, as such, our author says that it exists frequently enough. In this, his doctrine is in striking contrast to that of Dr. J. Henry Bennett, who as positively asserts that the displacement is the result of inflammation, and that, if unaccompanied by this, it produces no symptoms. These two authorities may be taken as fair exponents of two rival doctrines of uterine pathology, both of which have been more or less fully promulgated since the famous debate upon this subject in the Academy of Medicine at Paris, in 1864.

The radical differences of these opinions prevent their being harmonized, and one is almost lost in despair when he remembers that both appeal to personal experience to support their views. Bennett asserts, in his work on the uterus, that he has frequently seen version or flexion of the organ which produced no symptoms, and that when he had conquered the

inflammation, the uterus either regained its normal position, or, if still displaced, ceased to produce trouble. Hewitt, on the other hand, replaces the womb, restores the impeded circulation, and removes the compression of the nerves by his mechanical support. It will not do to assert that either of these gentlemen has erred in diagnosis. Hewitt's table is particularly valuable, since he examined all his patients himself, and states that he is personally and individually responsible for the accuracy of his facts.

In this connection, one point deserves consideration. The cases tabulated came to a hospital and clinic for diseases peculiar to women, and were therefore presumably suffering from some disorder. Our author nowhere mentions that he has at any time examined healthy individuals, and we all know how easy it is to conclude that a certain local condition and a coexisting group of symptoms bear to each other the relation of cause and effect. In order to clear up this uncertainty, it is necessary to examine the genital organs of a number of healthy women. A few persons have had the opportunity to pursue these investigations in lock hospitals and in the venereal wards of general hospitals. The writer has repeatedly examined prostitutes in the wards of the Philadelphia Hospital, whose uteri were flexed, and who had never suspected that they had uterine disease, and who would not admit that they had any symptoms of these disorders. Mr. Paul Dubois long ago called attention to the same fact, and it has been corroborated by the investigations of Goupil at the Lourcine Hospital at Paris. (*Clin. Memoirs on Dis. of Women*, Syd. Soc. Ed.)

These conclusions, as well as those of Dr. Hewitt, are the results of personal observation and experience; but they are more important, because they were reached after the examination of women who were not known to be suffering from uterine diseases. The conclusion that versions and flexions of the uterus may exist without producing any symptoms cannot be avoided, nor is it less rational to believe that the morbid phenomena which attend these displacements are often the result of the accompanying congestion or inflammation, which follow as the almost inevitable result of these, when they are acquired. In these cases every practical gynæcologist knows to what extent the fundus uteri will enlarge, how tender it will become, and in some instances what are the results of pressure upon the neighbouring organs. It is not more difficult to see how congestive or inflammatory diseases of the uterus lead to displacements.

The incorrectness of the mechanical pathology of these affections is constantly illustrated by the results of treatment. The follower of Dr. Hewitt will find that the simple reposition of the uterus, and maintaining it in position by one of the various modifications of the pessary, which our author advocates, will frequently fail. When the displacement has been produced suddenly, and the instrument has been fitted before the secondary congestion or inflammation has led to any permanent changes in the tissues of the uterus, the pessary may "act like a charm," and speedily cure the patient. If the case have progressed further, however, experience has demonstrated that these mechanical contrivances, which our author so earnestly advocates, may do harm rather than good.

The truth here, as in most other things, seems to be on the middle ground. If the pessary can be worn with comfort it may support the displaced organ, and, by removing pressure from the nerves and blood-vessels, *aid* in the treatment of the inflammation. As such it is an adjuvant never to be disregarded. On the other hand, the organ may be so tender that inflammation will have to be partly subdued before the physi-

cian can avail himself of this mechanical assistance. If Dr. Hewitt will allow himself to be uninfluenced by any peculiar dogma or preconceived opinions, we cannot but believe that bedside observation will show him that the views just enunciated are correct, while the mechanical pathology, though containing some truth, is in the main incorrect, and leads to dangerous conclusions in regard to treatment. How our author can shut his eyes to these facts it is impossible to tell, and it is equally strange that he fails to recognize that his countrymen have cured these displacements by disregarding them entirely and treating the accompanying inflammation. The writer has observed the same thing, and it would be illogical to conclude that Dr. Hewitt's patients are peculiar or in any way different from those of his professional brethren. A striking example of the influence of the treatment of what Dr. Hewitt calls the inflammatory complication of flexion recently came under our observation in a patient who was under the care of our colleague, Dr. Girvin, of the Presbyterian Hospital of Philadelphia. The woman had travelled a long distance to be cured of extreme anteflexion of the uterus, the result of inflammation. Pessaries, including the one devised by our author for this displacement, were faithfully tried, not only without affording any relief, but rather to the injury of the patient. Dr. Girvin then abandoned the mechanical treatment, and, by local depletion and intra-uterine medication, straightened the uterine cavity in a short time. Such cases are peculiarly instructive.

Perfectly consistent with his mechanical pathology, Dr. Hewitt abandons the classification of cases of dysmenorrhœa which was adopted in the last edition of this work. That his views are in a great measure correct cannot be denied, but they are too exclusive. One of the worst cases of dysmenorrhœa, which the reviewer has ever seen, was unattended by any uterine displacement save possibly a slight descent of the organ in the cavity of the pelvis. The womb was inflamed, the lining membrane intensely vascular, and the internal os so relaxed that a large sound was passed with the greatest facility. The discharge at her periods was profuse, and was attended with the most excruciating dysmenorrhœal pain. Whether this was owing to the profuse flow of blood, its retention and coagulation in the enlarged uterine cavity on account of the rapid discharge, or whether its passage from the uterus was impeded by spasmodic contraction of the fibres about the internal os, we shall not attempt to decide, but the practical fact remains the same, that dysmenorrhœa does not always have its origin in mechanical obstruction from flexion. This, however, does not vitiate the conclusion that our author has done a good work by insisting upon the importance of flexions as a cause of dysmenorrhœa in contradistinction to deficient size of the external os. Although many authors still adhere to the opinion that the latter is the seat of obstruction, we confidently believe that a more careful examination of the subject will prove that the flexion is a much more frequent cause.

In accordance with the same mechanical pathology, Dr. Hewitt has advanced a new doctrine in relation to the association of nausea and vomiting with uterine flexion. This he first promulgated in a paper, read before the Obstetrical Society of London (*Transactions*, vol. xiii. p. 103), in which he stated that the vomiting of pregnancy is due to flexion of the gravid uterus. This opinion is reasserted in the present edition of his book, and it is further stated that nausea and vomiting, as a symptom of uterine disease, has its origin in the same condition of the unimpregnated organ (page 430). Those who have read the discussion which followed

the presentation of his paper, remember how this proposition was met by the Obstretrical Society of London. The weight of authority and experience was thrown against Dr. Hewitt. Immediately afterwards the writer of this review began to study this subject, and examined a number of women, victims of the nausea of pregnancy, and he can only say that he made no observations which would confirm the statements of Hewitt.

In relation to the association of these symptoms with uterine disease the matter is somewhat different. The author says (p. 431):—

"Every case of flexion is not attended with nausea and vomiting, but in a considerable number of cases these symptoms are present, more or less in marked degree. The general rule on the subject is that in cases of anteflexion the nausea or tendency to vomiting is rather commonly observed. Also, it is found that aggravated cases of retroflexion afford the most aggravated instances of nausea and vomiting, though these extreme degrees of retroflexion are not necessarily, by any means, attended by such vomiting."

That there is an association between uterine disease and irritability of the stomach is a well-established fact, and, we believe, it is true that this symptom is more frequently connected with flexions than with other, and especially inflammatory, diseases of the uterus. But we cannot agree with the author that this tendency "is rather commonly observed" in anteflexion. On the contrary, we have not only met with the worst cases of it in retroflexion, but have more frequently seen it associated with this displacement than anteflexion.

The connection between the two was forcibly illustrated by a young lady who was under the writer's care last fall. She had always been in perfect health until about three months before, when, although married and childless, she had an abortion induced at the end of the second month. She did not lie in bed a single day. Shortly afterward she began to complain of dragging pains in the back and pelvis, dysmenorrhœa, nausea, and vomiting. Several physicians treated the condition of the stomach, and one made local applications to the uterus without any relief. When she came under our care she was in bed, emaciating rapidly, and we really entertained her own fear that she should starve to death on account of the irritability of the stomach. Upon examination the uterus was found sharply retroflexed and enlarged, but the fundus was not tender, and the os and lining membrane appeared to be healthy. The position of the organ was restored, and it was kept in place by the closed lever of Hodge. This truly "acted like a charm." Magic could have wrought no such wonder. The next morning our patient was out of bed; the nausea and vomiting had gone and never returned; she rapidly regained flesh, and, when seen again, a few months later, she was a handsome blooming woman.

Such cases make a strong impression upon a physician's mind, but they illustrate the exceptions, not the rule. In other cases of retroflexion the pessary has worked no such marvellous cure; indeed, we have been forced to abandon it, while our patients improved just in proportion as the inflammation of the fundus was diminished. Here, too, the author claims too much for his mechanical pathology. It contains some truth, but much that is unsound.

These are the principal changes in the present edition of this work. We close the book with keen regret, for, notwithstanding his vagaries, we have always admired the author. This very feeling makes it more painful to say that we regret that this edition has been published. It will not add to the reputation of the eminent professor at the University College, and

the ex-President of that honourable body, the Obstetrical Society of London; but, on the contrary, it proves its author to be like the quarrelling knights in the old story of the shield by the wayside. He can see but one side at a time, and he unfortunately affords us another illustration of how men, good and true, allow themselves to be carried away by a single idea. Such examples as this make us wonder if the old fact, that truth does not lie in extremes, but in the middle ground, will ever be generally recognized.

In the present edition of Dr. Atthill's work he reiterates his views in relation to the use of nitric acid applied to the interior of the uterus.

The chief addition to the work is a chapter upon "Enlargements of the Uterus," which will well repay careful study. J. S. P.

ART. XIV.—*Skin Diseases: their Description, Pathology, Diagnosis and Treatment.* By TILBURY FOX, M.D. Lond. Second American, from the third London edition, rewritten and enlarged, with a Cutaneous Pharmacopœia, a Glossarial Index, and sixty-seven additional Illustrations. 8vo. pp. xiv. 532. New York: Wm. Wood & Co., 1873.

IN place of the moderate-sized volume of some three hundred pages which we have been accustomed to look upon, we have now before us a large, handsome octavo almost double in size. Not only are decided alterations in the text everywhere to be noticed, but we also observe the introduction of a large amount of new matter, as well as numerous illustrations, which constitute a new feature in the book. The original volume, indeed, has undergone such radical changes that the present edition must almost be regarded in the light of a new treatise.

The author states that the work has been written to meet the wants of the practitioner in his daily dealings with disease, and at the same time to serve as a text-book for the student. He has succeeded well in his purpose, we think, and has produced a most excellent book, one which will be of great service to the student and also to the profession at large.

The introductory remarks are well selected, and give at once a healthy tone to the volume. Our author says:—

"He who would be a successful dermatologist, I have always held, and hold more strongly than ever, must also be a proficient in the principles of general medicine. The successful study of skin disease necessitates a knowledge on the part of the student, whoever he may be, of diseases in general, and he alone can treat cutaneous ailments satisfactorily who is master of the details of general therapeutics. The same disease, as it occurs in persons of different diathetic tendencies, requires to be handled in a somewhat varying manner. Eczema, for instance, in an old and gouty, a young and pallid, or a scrofulous subject, requires not the same, but modified treatment to meet the circumstances of each particular case. The rank specialist or mere empiric would diagnose the eczema, pay no heed to the diathesis, and employ a therapeute, which he has stereotyped as suited to eczema under all conditions. The philosophic practitioner, bringing into use his knowledge of medicine in general, would be careful to take advantage of known specifics; but he would treat any constitutional condition which tended to aggravate the main disease or to prevent reparative action; and he would rectify errors of function or departures from healthy action in organs and parts which, bearing relation by interdependence of function, thereby influence for evil the already diseased skin."

Such views as these carry with them sound doctrine, which, in our estimation, cannot be too often or forcibly repeated.

The chapter devoted to the mode of studying skin diseases is one of the best in the book, and abounds in original ideas. Our author here lays down a number of rules for study, which, if observed, will greatly facilitate diagnosis and enable the student to come to at least a rational conclusion as regards the case at hand. These few pages contain excellent advice clothed in plain but clear language. The following remarks are deserving of widespread dissemination, expressing, as they do, facts which are neither generally known nor fully recognized. Extensive international travel, together with a free interchange of experiences on the part of dermatologists, have done much within the last few years to clear away the mystery in which certain diseases were enveloped. Dr. Fox remarks:—

"There are differences in the same disease, as seen in this and other countries, as well as a distinction to be drawn between the several kinds of cutaneous affections occurring in England and abroad. For instance, the lichen ruber of Hebra is rarely seen in England, and not only less frequently, but also not in such a marked form as in Vienna. Lupus in Vienna is, on the whole, a much more severe disease than in England. Again, the prurigo of Hebra does not occur in England, save as the greatest rarity. It would seem too, that it is not the same severe disease here in external characters and behaviour. Parasitic sycosis is common in France, rare in England and Vienna. Psoriasis is infinitely more common in England than elsewhere, and urticaria in America, and so on. I lay much stress on the fact that differences in the same disease are seen here and abroad, and for this reason: That I wish it to be understood that the descriptions given by foreign writers of skin disease, whilst, in the main, they apply correctly to English skin diseases, yet vary in many important particulars, and, unless the student realizes this fact, and many do not, he will be sure to be confused in his reading. Conversely the descriptions given by English authors will not represent accurately the characters of diseases as seen abroad. There is, indeed a nationality of disease as well as of character or physique."

After a short chapter upon the anatomy of the skin, introduced into the work for the first time, wherein the recent studies of Biesiadecki are followed, our author offers some remarks upon the general pathology of the skin, including a description of elementary lesions. He prefers the clinical to the pathological system of grouping, considering that the purely histological standard-point cannot yet be adopted for classification, and that the etiology, clinical history, character, and course of skin diseases must be taken into consideration. The following plan is proposed:—

1. Eruptions of the acute specific diseases (zymotic). 2. Local inflammations, comprising urticaria, eczema, psoriasis, etc. etc. 3. Diathetic disorders, including syphilis and leprous diseases. 4. Hypertrophic and atrophic diseases, under which head are included ichthyosis, keloid, etc., and the atrophies. 5. New formations including cancer and lupus. 6. Hemorrhages. 7. Neuroses, as pruritus, etc. 8. Pigmentary alterations. 9. Parasitic diseases. 10. Diseases of the glands and appendages, including lichen tropicus, seborrhœa, acne, etc. etc.

The zymotic diseases are summarily discussed, short descriptions alone being given of the eruptions themselves for purposes of diagnosis. The disease called Frambœsia, or Yaws, here receives considerable attention, more, perhaps, than we should expect, considering that it does not occur in England. It is, however, a disease about which there has been much discussion of late, and the paper, strengthened by recent information, is interesting. The affection is also called mycosis and pian, and is almost

entirely confined to the African race. The testimony of the present day is against its being connected with syphilis, as was formerly supposed.

Under the head of Plastic or Papular Inflammations our author includes the Lichens, Strophulus, and Prurigo. Of the first he makes three forms, L. simplex (the Eczema papulosum of German and American writers), L. planus, and L. scrofulosorum. Lichen planus, a form of disease encountered and accurately described by Erasmus Wilson and so named by him, is considered to be the same disease as the Lichen ruber of Hebra, showing itself in England, however, in a milder form than in Austria. This is an important observation, and seems to be fully corroborated by the experience of Dr. Fox, he having met with several cases of the severe L. ruber of Hebra as well as a number of cases of L. planus.

Another disease in which our author has especially interested himself of late, and for which study special thanks are due, is prurigo, about which the greatest confusion has heretofore existed in England. He has done English dermatology a great service by disentangling this disease from the numerous other conditions with which it was continually confounded by English writers. Dr. Fox gives the following lucid description of the affection:—

"This disease is essentially a chronic inflammation of the skin, which expresses itself in the first place by the development of peculiar papulæ, and subsequently general thickening of the skin, and moreover, by intense pruritus at every stage of its course. It is a very uncommon disease in England, emphatically so in its severest form, which is seen pretty often in Vienna. I have been on the lookout for a case of the most marked form of disease, such as Hebra describes, for years past, and have only met with one case in England. In describing prurigo, it is most necessary to state *what prurigo is not*, for the reason that the word prurigo has been applied to several entirely distinct diseases in the loosest manner possible, and there is an abiding desire to rank under it diseases the most diverse *en masse*. I will, therefore, give in detail the characters of true prurigo, and then enter into particulars relative to the various diseases that have been and are likely to be confounded with it. The disease, I may say here, is not phtheiriasis (prurigo senilis of older authors). Prurigo occurs in two forms, a slighter and a severer form, to which the terms mitis and ferox, or agria, may be respectively applied. Prurigo mitis is characterized by the development of flesh-coloured papules, *in an isolated and scattered form*, of the size of a couple of pins' heads put together, or a little larger. These papular formations are attended by intense pruritus, which induces the patient to scratch and to excoriate the papules, which then become covered at their apices by dried blood-scales. Sometimes the papules are very deeply excoriated. There are also papules to be felt rather than seen on the skin, and if the finger be passed over the affected part they feel shotty and hard. . . . . The eruption, therefore, consists of certain papules, altered by scratching, and accompanied by intense itching, as *primary* and essential phenomena."

Prurigo ferox is next described, our author judiciously accepting Hebra's description for his text. This form of the disease is very rarely encountered in either England or America.

Dr. Fox divides eczema into three varieties; E. simplex, localized and without appreciable general symptoms; E. rubrum, more or less general and inflammatory in its attack, as regards not only its local inflammatory phenomena and implication of the deeper tissues, but the disorder of the system generally; and E. impetiginodes, in which the pus formation is not accounted for by the degree of inflammatory action. Eczema is regarded as a catarrhal inflammation of the skin, having its analogue in catarrhal inflammation of the mucous membrane. Great stress is laid upon this view, though we confess to being unable to see why it should be con-

sidered of such importance. Our author holds that the main feature of eczema is the presence of a peculiar discharge, which dries into thin yellow crusts. However long-standing the disease may be, it will always furnish evidence in its history of the fact that it has been moist at one time or another. Such being the case, the dry E. papulosum of writers is not admitted to be an eczema, but is placed under the head of Lichen, just where Willan arranged it. This view, which the author clings to tenaciously, we consider unfortunate, for it seems to us to be in opposition to all the most recent researches as well as clinical experience. Dr. Fox is one of the few writers of the present day who still holds to the old ideas concerning the division of eczema.

Our author is by no means settled in his views concerning the nature of impetigo contagiosa, a form of disease first described by him. As is well known it has been asserted by some that the disease is one of parasitic origin; but Dr. Fox does not accept this theory as a cause of the trouble. The whole character of the disease, he maintains, with its febrile disturbance, its vesico-pustular aspect, the definite course of each vesico-pustule like that of an herpetic vesicle, is utterly unlike the course of a parasitic affection. Though a well-known disease, and readily amenable to treatment, its nature still remains obscure.

Under squamous inflammation we are to include two diseases, pityriasis rubra and psoriasis. Our author describes the first of these, pityriasis rubra, with a free pen, and speaks of having often encountered the disease. It is a rare affection, according to the experience of most dermatologists, and one whose record as a primary form of disease is by no means clear. It is for this reason that the following account of it will prove interesting:—

"Pityriasis rubra is a primary form of disease characterized essentially by general hyperæmia of the superficial parts of the skin, and hyperplasic growth of the cuticular layer. The disease commences oftentimes in those who have had a good deal of mental anxiety, or who have been working laboriously, and the first signs are redness and scaliness in some parts of the body. Presently the patch begins to extend, and then the surface of the whole body speedily becomes, within a fortnight or so, hyperæmic—of a deep red colour, which is lessened by pressure, and is accompanied by constant exfoliation of branny lamellar scales, but without any exudation or infiltration of the skin, or any discharge at all from it. The sudden development of the disease, and the way that it spreads, so as to implicate the entire body, are very characteristic. The developed disease varies but little in aspect during its whole course. The patient sometimes does not complain of much inconvenience in the way of itching, but I have generally found that patients are tormented by "burning heats." The desquamation, when the disease has fully developed, may be very free and extensive; the whole cuticle of the hand may peel off *en masse*, as it were, and the amount of scales shed day by day may be prodigious. About the arms especially the scaliness may be markedly imbricated in regular order, like the tiles of a house, the white fringing presented by the edges of the flakes contrasting with the red hyperæmic surface exposed beneath the white flaky masses. The nails, one or even all, may be shed."

Dr. Fox believes that the disease consists in an hyperæmia of the upper layer of the cutis, involving its longitudinal plexus of vessels, with hypertrophy of the cuticle. Secondary hypertrophy of the fibro-cellular textures may follow in the latter stages of the disease, but this he does not believe to be a necessary part of the disease. He denies emphatically any connection between the affection and eczema.

The chapter upon Leprosy, or Elephantiasis Græcorum, is very complete. The author's experience with this disease in the East and elsewhere, renders his views particularly valuable. The various forms of treat-

ment which have been recommended, including the method of Dr. Beauperthuy, are carefully considered, and the conclusion arrived at that, by means of strict hygienic measures, in connection with fresh meat and other articles of diet, much can be done for the patient's relief.

Under the name Fibroma Fungoides, Dr. Fox describes a form of fibroma of which he has seen four examples. It differs from fibroma molluscum in that it has a tendency to ulcerate, showing at the same time great vascularity. A synopsis of these four cases is given, but the histories are too short and incomplete to allow of any opinion being formed by the reader as to the nature of the disease. A remarkable wood-cut accompanies one of the cases, which certainly represents a very curious form of disease. The account of the neuroses of the skin, under which head our author comprises hyperæsthesia, anæsthesia, and pruritus, is short and rather unsatisfactory.

The diseases due to vegetable parasites are grouped together, and called by the generic term tineæ. Ten parasitic diseases are described, several of which, it appears to us, might have been omitted, inasmuch as they are not diseases, but forms which the same fungus assumes in different parts of the body. We refer to disease produced by the trichophyton.

We notice with some surprise that our author still adheres zealously to the idea of there being a fungus in connection with the affection alopecia areata, or tinea decalvans, as he calls it. The supposed fungus of this disease is here shown by several well-worn wood-cuts, which unfortunately exhibit nothing distinctly. One of them shows absolutely nothing, being simply a complete blur, with no sign of anything like fungus, while the other portrays a part of a hair with spores, magnified less, probably, than a hundred diameters, yet the spores being represented as large as those of the trichophyton with a power of two hundred diameters. Now, when we are informed that the spores are from $\frac{1}{25000}$ to $\frac{1}{5000}$ of an inch in size (*very much smaller* than the trichophyton, these being estimated at about $\frac{1}{5000}$ of an inch), it is manifest that there is a great discrepancy in the proportion of the size of the hair and the spores upon it. To say the least, the drawing is a poor one, and would mislead, supposing fungi to be present. We should be pleased to agree with the author in his conclusions concerning the nature of this disease were sufficient proof presented; but in the paper before us we fail to find this proof, or, indeed, any new investigations which tend to the support of the microsporon Audouini.

The latter part of the book bears evidence of haste in its preparation, some of the chapters being too short to do full justice to the subject. Diseases of the nails, for instance, receive but one page, while acne is disposed of in four.

As before alluded to, the work is illustrated with drawings of pathological conditions, borrowed almost exclusively from the works of Neumann, Biesiadecki, and Auspitz, though in point of execution scarcely up to the originals. We are pleased to observe their introduction, however, into the present volume, for they are well selected, and also serve as a friendly recognition on the part of English dermatologists of those who have accomplished so much in their specialty.

In conclusion, we cordially recommend this book to those who may desire to become acquainted with the modern views of cutaneous diseases. It is the only treatise upon skin diseases, penned by English hands, which gives any idea of the strides dermatology has made within the last ten years.

L. A. D.

ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

ART. XV.—*Guy's Hospital Reports.* Edited by C. HILTON FAGGE, M.D., and ARTHUR E. DURHAM. Third series. Vol. XVIII. 8vo. pp. xviii., 502. London: J. & A. Churchill, 1873.

THE contents of the present volume of this valuable series equal in variety and interest those of its many predecessors. Among the contributors to it are Drs. Wilks, Moxon, Hilton Fagge, and Habershon, and Messrs. Cooper Forster and Bader, all of whom are well known as writers. In accordance with our custom, we shall lay before our readers abstracts of the most important papers, and shall first call attention to those on medical subjects.

On Acute Dilatation of the Stomach; by C. HILTON FAGGE, M.D.—Although chronic dilatation of the stomach, whether dependent or not upon obstruction at the pylorus or in the small intestines, is a condition which has long been recognized. Dr. Fagge thinks that up to the present time its physical diagnosis has not been carefully studied. It would be a great mistake, he says, to suppose that an enlarged stomach differs from the healthy organ, simply in occupying a larger part of the abdomen. On the contrary, a constant feature of these cases is that the organ is greatly displaced downwards; the gastro-hepatic omentum, the lesser curvature, and the cardiac extremity of the stomach, being all much elongated. Hence, instead of the dilated stomach forming a prominence in the epigastrium, that region is more or less deeply hollowed, whilst below the umbilicus one may observe a large rounded tympanitic swelling. But, he continues, the most distinctive feature of dilatation of the stomach in these cases, and that which enables the exact position of the organ to be most accurately determined, is afforded by the peristaltic movements of its muscular coat. These usually begin near the left costal cartilages, descend below the umbilicus, and after passing over to the right, terminate by ascending more or less towards the right hypochondrium. The movements of the small intestines, so frequently seen in cases of chronic intestinal obstruction, present very different characters; and in the transverse colon direct peristalsis would produce a wave passing from right to left, or in the reverse direction to that which has been described as belonging ordinarily to the gastric contraction. It must, however, be remembered that in both forms of disease, anti-peristaltic movements may and do occasionally take place.

Acute dilatation of the stomach, although occurring oftener than is perhaps suspected, is a very rare affection, Dr. Fagge having been able to collect only four cases. One of these he saw in consultation, another was treated by Dr. Rees in Guy's Hospital, the third is recorded in the fourth volume of the Transactions of the London Pathological Society, and the fourth is reported by Dr. Bennett in his work on the *Principles and Practice of Medicine.* The first is especially interesting, because the diagnosis was fully made, and the proper remedies applied during the life of the patient. He was a young man, eighteen years of age, of tall but spare frame, and although until fourteen days before he was seen by Dr. Fagge, he had been in the enjoyment of his usual health,

he was probably not possessed of a very robust constitution. Upon examination the abdomen was found to be greatly but not uniformly distended. For while the whole of the lower part of the belly was full and rounded, and the left hypochondrium was equally so, the right hypochondrium was flat, or even slightly hollowed. The separation between the rounded and flattened region was indicated by an oblique line descending downwards and to the right from the upper part of the left hypochondrium. Every time the patient breathed, this line could be seen to descend a little. The principal symptoms were constant vomiting of a greenish liquid, as much as a pint being brought up at a time, and pain in the abdomen. There was a tendency to constipation, and to suppression of the urine. The symptoms were relieved at first, but afterwards returned in full force; the vomiting, however, again ceasing before the patient was visited by Dr. Fagge, who at once came to the conclusion, that whatever the original disease might have been, his distress was then mainly caused by dilatation of the stomach, and that this organ contained a large quantity of fluid, but was paralyzed from over-distension, and unable to rid itself of its burden. He therefore determined to use the stomach-pump and empty the stomach, feeding the patient for a few days by nutrient enemata, and in this way giving the organ complete rest. The tube of the stomach-pump was accordingly introduced, and as soon as it had entered the stomach a few ounces of fluid, similar to that previously vomited, were ejected through it with considerable force; and when the pump was put into action, seven pints more were removed. The effect of the operation upon the contour of the abdomen was very marked, and together with this there was complete relief from pain. The improvement was unfortunately only temporary, for two hours and a half later the patient died. At the autopsy the stomach was found only moderately dilated, but when it was pulled down by means of the omentum, it could be made to come considerably below the umbilicus. A little patch of lymph was discovered at one spot on the peritoneum, passing from the large bowel to the mesentery of the small intestine. During the necessary manipulations, the serous membrane gave way at this spot, and a thin fetid fluid with air exuded. This was found to come from a large cavity situated behind the ascending colon, gall-bladder, and other parts, all of which were fixed together by firm fibrous adhesions of old date. A finger passed through the pylorus went straight into this cavity, and it was at first supposed that the whole calibre of the second portion of the duodenum had sloughed away. Subsequently, it was found that the duodenum passed down on the inner side of the cavity. Besides a considerable quantity of fetid fluid, the cavity contained a large-sized slough, some inches long, apparently the remains of a mass of connective tissue. Dr. Fagge apparently attaches very little consequence to this lesion, but it is impossible to conceive that it was without an important bearing upon the result of the case.

In the other three cases the enlargement of the stomach was much more considerable. In the case reported by Dr. Rees, "when the abdomen was opened the stomach was almost the only organ visible. The stomach passed from the under surface of the diaphragm downwards as far as the pubes; an oblique line traced in this direction, was found to measure thirteen inches. The organ then bent sharply upwards to reach the under surface of the liver, where the pylorus lay in its natural position; a line traced obliquely upwards from the lower end of the other line at the symphysis pubis, measured eight and a half inches."

Dr. Fagge, from a careful study of the four cases reported in this paper, thinks the following conclusions justifiable: 1. Acute dilatation of the stomach

may arise in young subjects, in whom that organ has previously been apparently healthy. The actual progress of enlargement is more or less gradual; but it produces at first no symptoms, and when these occur they are hidden in their onset, and of great severity, and may destroy life in a few days. Acute dilatation of the stomach may be the only disease found in the body after death, as it may have supervened upon some other morbid change in the alimentary canal. 2. Its signs are, (*a*) a rapidly increasing distension of the abdomen, which is unsymmetrical; the left hypochondrium being full, while the right hypochondrium is comparatively flattened; (*b*) The existence of a surface-marking descending obliquely towards the umbilicus from the left hypochondrium, and corresponding to the dropped-down lesser curvature of the stomach, this line appearing to descend with each act of inspiration; (*c*) The presence of fluctuation in the lower part of the abdomen; (*d*) The occurrence of splashing when the distended part is manipulated; (*e*) The presence of an uniformly tympanitic note over a large part of the distended region when the patient lies on his back. Above the pubes, on the other hand, there may be dulness on percussion simulating that of a distended bladder. 3. Its symptoms are those of severe abdominal disease, without evidence of peritonitis or lesion of the intestines. There is very profuse vomiting, so that several quarts may be evacuated in the twenty-four hours. After a time, however, vomiting may cease entirely, the stomach being paralyzed, and unable to rid itself of its contents. There is no absolute constipation, although the bowels may be more or less confined. The urine is scanty. 4. After the removal of the stomach from the body, and the escape of its contents, it may shrink back to its natural size, no matter how great its previous enlargement, and the only remaining indication that it had undergone extreme distension, may be the presence of slight lacerations of its coats.

The treatment which he recommends is that which he adopted in the case which has been so fully referred to in this notice.

In the case reported by Dr. Bennett, the patient a few days before his death swallowed two or three bottlefuls of effervescing lemonade, and the dilatation of the stomach was believed to have arisen from the sudden disengagement of a large quantity of gas. No cause is assigned for the occurrence of the condition in the other three cases. In two of the cases sarcinæ were discovered in the matter vomited in greater or less number. In both these instances numerous ecchymoses were found in the mucous membrane of the stomach, a fact of some interest as bearing upon the opinion lately advanced, that, instead of being vegetable organisms, sarcinæ arise from aggregations of blood disease.

A Case of Patent Ductus Arteriosus; by C. Hilton Fagge, M.D.—In volume sixteen of the present series of these Reports, Dr. Fagge describes a case in which a murmur was audible different in character from any bruit he had ever before heard. Two views as to its cause suggested themselves to his mind—one that it was due to a communication between the aorta and the pulmonary artery; the other, that it was a modification of an auricular systolic murmur. Last year the patient returned to the hospital and died there. On post-mortem examination it was found, that the only lesion to which the peculiar bruit could be attributed was a patent ductus arteriosus. The peculiar features in the case were extreme slowness of the pulse, and the presence of a wavy, partly musical murmur, audible at the second left costal cartilage, extending considerably to the left of the sternum along the cartilage, not carried along the sternum downwards, following the second sound, but not everywhere continuous with it, and separated from the next first sound by a considerable interval. Very few cases are on record in which a persistent ductus arteriosus has been believed

to have given rise to a murmur. In the first volume of the *Transactions of the Pathological Society of London*, a case is recorded by Dr. Babington, which is the only one mentioned by Walshe. Prof. Jaksch reports a case in the *Prager Vierteljahrschrift*, for 1862, in which there was a murmur similar to that heard in the case reported in this paper. On post-mortem examination the foramen ovale was patent, as well as the ductus arteriosus.

In some *Remarks on Diseases of the Nervous System, with Cases*, Dr. WILKS complains, that, notwithstanding the light which recent physiological investigations have thrown upon the functions of the brain and spinal cord, we continue to make use of the terms "cerebral" and "spinal" paralysis. Physiologists of the present day regard the spinal cord as consisting not only of that part of the cerebro-spinal axis situated within the vertebral column, but also of the nervous centres from which the cranial nerves take their origin, seated upon its summit. The cerebrum, or brain proper, is the large mass which covers and incloses the upper part of the spinal cord, and which receives impressions from all parts of the body, as well as from the special senses, converts these into perceptions and mental processes, and develops a volitionary power which affects the cord below and through this the body at large. Disease of the brain will indeed produce delirium or dementia, but it cannot cause paralysis, which, on the other hand, is caused by any change in the spinal cord. The only exception to this rule (and Dr. Wilks regards it as only an apparent exception) is furnished by those cases in which general arachnitis or the like has, by an interference with the volitionary power, been accompanied by a want of movement in a limb.

The author next considers the pathological connection between the nerves and cerebro-spinal centres, saying that there is every reason for believing, that, owing to the direct connection between them, a peripheral portion of the body might be affected from the centre, or, on the other hand, the centre from the periphery, entirely through nervous agency. Several cases are reported and others referred to, in which a local injury resulted in paralysis of other parts. The changes in the nervous centres and in the muscles in progressive muscular atrophy and in locomotor ataxy, are also regarded by Dr. Wilks as dependent one upon the other, although, since the pathology of both these affections is still obscure, it is impossible to say which lesion has preceded the other.

The only nervous disease having an organic cause which the author has not seen counterfeited by a functional disease is contraction or spasmodic affections of the muscle. These diseases, in his experience, constitute the most difficult to explain or to treat in the whole domain of clinical medicine. In some cases he believes them to be due to chronic spinal meningitis, in others to sclerosis of the cord itself. Dr. S. W. Mitchell, in his recent work on *Injuries of Nerves and their Consequences*, has shown that in some cases sclerosis of the nerves of the affected part may also exist. A few pages are devoted to the consideration of "Vertigo and Cerebral Symptoms occurring in Deafness and other Affections of the Ear." This subject is, however, more fully discussed by Mr. James Hinton in a paper "On Labyrinthine Vertigo; sometimes called Ménière's Disease." The paper concludes with some remarks on the Uses of Galvanism.

On Sudden Death from Syncope soon after Labour; by J. J. PHILLIPS, M.D. —There is a class of cases in which sudden death occurring soon after labour is attributed by Dr. Phillips to fatty degeneration of the heart, which has been set up by the anæmia so often attendant upon pregnancy. The patients whose histories he records were multiparæ, and are described as being pale

and having the external appearances of women in feeble health. In almost every instance there was an antecedent history of breathlessness, either during gestation or labour, and whenever an opportunity of examining the heart microscopically was afforded, the muscular tissue exhibited well-marked fatty degeneration.

"This point" he says, "appears to be one deserving of special notice, and I cannot but think that it was an important factor in the production of the fatal result. I am, indeed, aware that a certain amount of fatty change in the tissue of the heart has not been here commonly noticed in cases of child-bed death; but this degeneration, even if regarded (as it has been) as simply the result of certain blood changes incident to pregnancy, must, I think, when once produced, be looked upon as having more than an accidental relation to the mode of death in these cases of fatal syncope."

The author refers to papers by De Cristoforis, Wilks, Gusserow, and Hecker, in support of his views.

In a paper *On the Dynamics of Epilepsy and Convulsions*, Mr. J. Thompson Dickson advocates the view that all excito-motor affections are the resultants of two factors—the first, loss of cerebral control; the second, an excitant. Both factors, he says, are always present in convulsions, whether the convulsion be local or general, in epilepsy and eclampsia, though the second may be so far wanting as to render the chain of symptoms, as commonly described, incomplete. The cord capable of reflecting excito-motor stimuli under certain circumstances, must be considered as extending from the united thalami optici and corpora striata to the caudal extremity of the medulla spinalis. The normal influence exerted by the cortex of the brain on the excito-motor apparatus is one of control, an influence exerted more or less through the simple agency of volition or will, which presumably is capable of controlling an impulse to most involuntary movements, such normal reflex acts as deglutition and ejaculatio seminis, whose centres of action are out of connection with the cortical gray matter, being of course excepted. The occurrence of local convulsions the author explains by supposing that the power of control (by excision, tumour, abscess, or other means of destruction of tissue) is cut off from a limited area of the brain's surface.

Mr. Dickson thinks that the proximate cause of excito-motor action is to be sought for in some alteration in the circulation of the brain, but he agrees neither with Dr. Marshall Hall, in believing that this alteration depends upon an impeded flow of venous blood from the brain, nor with Mr. Solly, in considering it to be due to an active determination of blood to the head. He holds, on the contrary, that the condition really present is cerebral anæmia. In support of this view he refers us to observations, made in slaughter-houses, where animals are put to death by bleeding, the effect of which is always to produce convulsions before death. This was at first explained by the assumption that muscles contracted spasmodically when deprived of blood, but the fallacy of this opinion has been demonstrated by Kussmaul and Tenner, who have shown that deprivation of the brain of arterial blood by tying the vessels of the neck will produce all the effects as perfectly as, or more perfectly than, depletion. This conclusion has been rendered still more certain by the study of the brain by Donders's method, which consists in inserting an air-tight window into the skull and observing the brain through it. It is then found that on compression of the large arteries of the neck complete anæmia of the brain and its membranes ensues, and this continues until the convulsion begins, when the venous anæmia partially subsides, though the arterial and capillary anæmia is unaltered. Indirect evidence in favour of the same view is furnished

by the blanched anæmic appearance of the face and neck on the invasion of an epileptic attack, which must correspond with the condition within the skull. Moreover, convulsions are produced by the injection of water into the circulation.

The invasion of unconsciousness in epilepsy is always sudden, and it may be explained by supposing that under the influence of some irritant an instantaneous contraction of the smaller arterial vessels takes place. This irritant may be a tumour or an abscess seated within the cranium, or it may be contained in the blood, or may act upon the medulla spinalis from some other part of the body. The author regards the loss of consciousness which takes place in apoplexy as also caused by anæmia of the brain, the extravasated blood in this case acting as the irritant. Niemeyer has long held the view that apoplectic stupor was due to this condition, but he explains its occurrence differently.

Dr. Hughlings Jackson has recently advanced the theory that from the seat of pathological lesions discharges are sent out, which are distributed to certain muscles in the case of local affections, and to the muscles generally in the case of a general affection. Dr. Dickson maintains, on the contrary, that when control over certain muscles is lost or diminished by destruction or injury of a portion of the surface of the brain, involuntary or convulsive movements will occur in these muscles from reflex excitation. The muscles, he says, contain a power of contraction in themselves, irrespective of mandates from the cerebrum, and convulsive movements may be induced in a warm-blooded animal after the whole of the cerebrum has been sliced away.

Mr. JAMES HINTON contributes a paper *On Labyrinthine Vertigo, sometimes called Ménière's Disease.* Under the name of Ménière's disease is described a very numerous class of cases, apparently embracing several varieties, in which some of the symptoms of formidable disease of the nervous centres, especially giddiness, vomiting, and staggering, have their origin in affections of the labyrinth. In the cases comprehended under this title, the nervous symptoms do not depend upon inflammation of the tympanum or of the adjacent parts, which, it is well known, is capable of producing grave cerebral disorders, or upon the pressure caused by accumulations of cerumen or by a foreign body in the meatus which occasionally give rise to symptoms simulating those of cerebral affections. The nature of the lesion of the labyrinth in Ménière's disease is still unknown. In fact the few post-mortem examinations which have been made seem to indicate that it is not always the same. Dr. Knapp, of New York, in an exhaustive discussion,[1] has given it as his opinion that the phenomena of labyrinthine vertigo may be traced in all cases either to hemorrhage or to serous or purulent exudation within the semicircular canals. Several interesting cases of the affection will be found in this paper and others in Dr. Wilks's.

Queries in Theoretical Physiology, No. II.; by JAMES HINTON.

On the Artificial Formation of Organic Substances; by Dr. HENRY DEBUS.

These papers are of more interest to the organic chemist than to the practical physician, and in view of the limited space at our command, we shall not attempt to analyze them.

A Case of Inflammation of the Aorta, causing Contraction of its Ascending Part and Fatal Ischæmia; by WALTER MOXON, M.D.—Three patches of disease of the aorta were found in this case—one situated at the origin of the vessel, another in the commencement of the descending part, and the third near the

[1] "Archives of Ophthalmology and Otology," vol. ii. No. 1, p. 204.

cœliac axis. These patches are said to have had the appearance of a circumscribed eruption, with a tendency to spread with convex edges just like a patch of lupus. The thickness of the diseased part was considerably increased, so that it was five times that of the healthy portions of the vessel, but not uniformly so. A microscopic examination showed that the cells, of which certain yellow spots in the patches were made up, were exceedingly small ($\frac{1}{5000}$ of an inch), and have some resemblance to those of tubercle. Dr. Moxon believes that the disease was originally eruptive, in the sense in which we speak of cutaneous eruptions, and from this and other cases which he has met he is emboldened to express his belief that the coats of the arteries are as liable to inflammatory eruptions as the skin to its eruptive inflammations.

In a paper *On Hospital Dietaries*, Dr. J. C. Steele compares the diet-tables of the various hospitals in London, not only with one another, but also with those of some of the provincial hospitals. He has evidently fully investigated the merits of each, and we would commend the careful study of the article to those who may be in charge of similar institutions in this country, where we have good reason to believe the diet of the sick is not nearly so well attended to as its importance demands.

Some Cases of Hydatid Disease; by S. O. Habershon, M.D.—In the *Hospital Reports* for 1860, Dr. Habershon published several cases of hydatid disease. In this volume he places on record four additional instances, because, he says, they illustrate some of the difficulties in diagnosis, and because they show the importance of early and decided treatment when the nature of the malady is ascertained. In the first case the hydatid appeared to have located itself originally in the lung, where it seems to have given rise to so much irritation as to have caused hemorrhages. During one of these a portion of membrane was expectorated, in which Dr. Moxon detected the plicated foldings of a hydatid cyst. Death in this case was caused by hemorrhage from a vein which opened directly into the cavity left by the hydatid, a lesion which is very well shown in the accompanying plate. The result was more fortunate in the next instance, in which the hydatid cyst was also expectorated. The symptoms indicated that the disease was originally seated in the liver, that adhesive inflammation on both sides of the diaphragm had taken place, and that the cyst had then made its way into the lung. The diagnosis in the third case was more difficult, for even after the hydatid character of the disease was recognized, it was doubtful whether the mischief was located in the kidneys or in the spleen or in the left lobe of the liver. The tumour extended too far into the left loin and into the left hypochondriac region for it to be the left lobe of the liver, but it was more difficult to ascertain whether the kidney or the spleen was affected. The cyst was twice punctured by Mr. Bryant, who drew off on the first occasion thirty-seven ounces of a clear fluid free from albumen, in which Dr. Fagge detected the head of an echinococcus surrounded by a row of hooklets. At the second operation five pints of fluid also containing scolices were removed. A small number of hydatid cysts also came through the canula. The cyst was subsequently washed out with a dilute solution of carbolic acid (2 grains to 4 ounces). The patient finally sank from exhaustion induced by rupture of the sac into the peritoneal cavity. In the last case there was an old hydatid cyst in the liver, which induced perforation of the diaphragm and subsequent pleurisy and death.

The unfavourable termination of most of the instances recorded in this paper, induces Dr. Habershon to believe that if the diagnosis be clear it is a safer plan to withdraw the fluid early than to trust to the possible death of the hydatid and gradual wasting of the cyst, and in cases also where there is

a refilling of the cyst after tapping he regards it as the wiser plan to re-empty the cyst early than to allow suppurative changes to ensue by the indefinite postponement of a second operation. J. H. H.

Turning our attention now to those papers which are more particularly interesting to surgeons, we meet first with Mr. J. COOPER FORSTER'S annual contribution of *Clinical Records*. In the present instalment, Mr. Forster has wisely limited his selection to the more important cases which have been under his care, giving the details of but sixty-three out of nearly four hundred. He has also much increased the value of his pages by adding a synopsis arranged as an index, by means of which reference is easily made to the somewhat miscellaneous contents of his paper. Among Mr. Forster's most interesting cases we note particularly one of innominate aneurism, unsuccessfully treated by distal pressure on the carotid—the patient dying on the sixth day from capillary cerebral hemorrhage; and one of naso-pharyngeal polypus, the removal of which was facilitated by a preliminary osteo-plastic resection of the upper jaw, the bone being displaced *outwards*, instead of inwards, as in Langenbeck's, or downwards, as in Cheever's operation. From Mr. Forster's remarks upon Prof. Lister's "antiseptic method," we select the following paragraphs, which afford what we are disposed to consider a very just estimate of this much-vaunted mode of treatment:—

"During the past year I have tried the antiseptic treatment in many cases in which I thought it could be carried out satisfactorily. . . . To insure the thorough application of this method necessitates the constant attention of the surgeon who has charge of the case, and practically, in a London Hospital, such entire supervision is a simple impossibility. The practice, therefore, becomes virtually placed in the hands of the dressers, and unless these gentlemen take a great interest in improvements, or are not too much occupied with the many cases which almost overburden them during their respective weeks of duty, it is not likely to be taken up warmly by them. Moreover, the thorough method of the application of the dressing is not acquired without considerable practice, and when acquired one's best efforts are often rendered futile by the restlessness of the patients. Hence the measure of my success during the last year has not been what I had hoped for. . . . Whether or not the absence of pyæmia and erysipelas from the wards has been due to the carbolic vapour permeating them, or to the application of the acid directly to discharging surfaces, of course I cannot speak positively, but my impression is that carbolic acid, in whatever form, has had very little to do with the results obtained, and that those curses of surgical practice (erysipelas and pyæmia) have been avoided by greater cleanliness in the wards, and the larger cubic area allowed to each patient. That this immunity cannot be owing to the antiseptic treatment must, I think, be evident from the fact that none of my surgical colleagues, who have charge of the other wards, have used this antiseptic plan, and there has been in their case an equal immunity from erysipelas and pyæmia. . . . Isolated cases of wonderful results, under antiseptic means, are to be met with now and then, but whether on account of, or notwithstanding, the treatment, appears to me to be quite impossible to determine. . . . If the remedy . . . is only available in practised hands, I cannot think it advisable to teach students that it is the one plan of treating all cases of external wounds. My results do not even bear me out in telling them that it is the most advisable treatment to be adopted; it is impossible to compare case with case. In the only very severe accident in which I tried the plan myself, taking every precaution that possibly could be adopted to insure the treatment being carried out in its entirety, I utterly failed to secure a good result."

The next paper to which we shall invite our readers' attention is *On Follicular Disease of the Scalp;* by JAMES F. GOODHART, M.B.

The author refers to papers on follicular disease, by Messrs. Cock and

Birkett, in a previous volume of the *Guy's*,[1] and by Mr. Prescott Hewett, in the *St. George's Hospital Reports*,[2] and then, dismissing the clinical features of the affection, gives an account of the microscopic appearances observed in two cases under the care of the late Mr. Poland, and compares them with the appearances in a third case, published by Mr. Birkett in the *Transactions of the Pathological Society of London*, and with those in a fourth, known as Chassaignac's and quoted by Mr. Hewett in the paper already referred to. While in their general characteristics the growths in these four cases presented a tolerably complete correspondence with each other, their microscopic peculiarities differed, the first (and probably the last) being of an epithelial character, the second sarcomatous, and the third resembling a gland in its cellular elements. We have not space to follow Mr. Goodhart in his interesting discussion of the different views which have prevailed as to the origin and nature of these follicular tumours or sebaceous cysts, but must content ourselves with transcribing the paragraphs in which he gives a "summary" of what has gone before:—

"There seems to be enough evidence to show, first, that follicular tumours are, in their bare anatomical details, suspicious in their tendencies, and that, inasmuch as their anatomy is an index, rough though it may be, of their life's process, that is to say, of their pathology, from the latter point of view they may still be said to have very close relations to the cancerous or malignant group.

"Secondly, abundant material is at hand to prove, as former writers on the subject have shown, that, clinically, such tumours have not the behaviour of cancers, and if removed they do not return. Pathology and surgery in its clinical aspect would seem at first sight, then, to come into collision; they do not do so in reality. The non-recurrence of the tumour only shows that the regions more especially prone to attack afford opportunities for their complete extirpation, or that allowing of growth which is malignant in its nature, the local peculiarities of the part have been in some way inimical to the extension of the disease.

"It seems almost unnecessary to add that the practice urged by Mr. Cock, in his paper on the subject, as to the advisability of the early removal of the tumour, is very strongly supported by these observations."

Mr. Goodhart's paper is illustrated with two well-executed plates.

The next surgical paper is a *Note on the Operation of Circumcision in the Adult;* by H. G. Howse, M.S. Mr. Howse calls attention to the fact that after the operation of circumcision, as ordinarily performed, a considerable swelling, resulting from inflammatory induration, occasionally persists at the lower part of the penis. To obviate this he says:—

"The remedy which I propose, and which I have been in the habit of using in all my circumcision cases, is the following: After removing the skin in the ordinary way, cut out the wedge-shaped piece of mucous membrane *at the frænum* with a pair of scissors, and then snip the frænum cleanly away from the glans, thus removing it and the wedge-shaped bit of mucous membrane in one piece together. Then unite the skin and the mucous membrane in the ordinary way, etc."

Upon which we have to remark that (1) the removal of the frænum with a wedge-shaped portion of the prepuce, is in effect but a revival of the old method of Taxil and Jobert (de Lamballe), and that (2) it has the disadvantage of exposing the patient to the risk of secondary hemorrhage, a complication which we have ourselves met with in a case of circumcision in which the

[1] Guy's Hosp. Reports, 2d S., vol. viii.

[2] St. George's Hosp. Reports, vol. iv. p. 91, and No. of this Journal for July, 1870, p. 208.

frænum was divided at rather a higher point than usual. As to the deformity, to which Mr. Howse justly objects, we believe that it is much less apt to follow the operation of *circumcision* than that of simple *division* of the prepuce on its dorsal aspect, which some surgeons, for reasons which we have never been able to understand, seem to prefer.

We come next to *A Description of the Appearances of the Human Eye in Health and Disease as seen by the Ophthalmoscope. Seventh Series. Myopia; Region of the Yellow Spot.* By C. BADER. This short paper, which is a continuation of the author's previous contributions under the same general title, is accompanied with a chromo-lithographic plate containing five figures.

The next is at once one of the longest and one of the most valuable papers in the whole volume; it forms, indeed, one of the most important contributions to the literature of its subject with which we are acquainted. At the same time, candor compels us to add that it will prove, we fear, in a great degree "caviare to the general," and that it is not most appropriately placed in a volume of hospital reports. The paper in question is by Dr. WALTER MOXON, and is *On the Pathological Nature of Tumours.* We have read the whole of Dr. Moxon's essay with much interest, and would cordially commend it to the attention of such of our readers as take pleasure in studying the obscure but important subject of morbid growths; we must content ourselves, however, in this place, with quoting the author's conclusions, which are as follows:—

"*Summary of the theory of tumours.*—In the present state of our knowledge of tumours, both benignant and malignant, it is necessary to regard the hæmal processes as subordinate to the parenchymatous processes in their production.

"The blood furnishes a plasma to the tumour, and very likely favours the development of the tumour much in the same way as starvation in a plant favours the development of the aphis. Such favouring tendency in the blood may be necessary, but is not sufficient to form a tumour.

"The power of the blood-cells to form tumours in leukæmia, etc., if proved, is only a means of secondary causation, because the blood-cells themselves are derived from the solid textures. There is no reason to believe that the 'plasma' furnished by the blood can produce cells.

"The individual cell-elements of tumours arise by multiplication of the cell-elements of the parenchyma. This multiplication of the parenchyma-cells is always constitutional, although it be localised in the part, and although it may require prolonged irritation to elicit its activity. There is also a 'higher' controlling influence to be recognised in the formation of tumours—an influence equal to that which governs the organization of the several organs of the normal anatomy. This organizing influence determines the elementary cells into various plans according to the nature of the tumour."

Dr. Moxon's essay is illustrated with well-executed wood-cuts, showing the microscopic appearances of the various forms of tumour described by modern pathologists.

The next paper to be considered is called *Notes of Abnormalities observed in the Dissecting-Room, from October, 1870, to June, 1872*; by N. DAVIES-COLLEY, M.C., F. TAYLOR, M.D., and B. N. DALTON, M.B. The amount of anatomical work done by the students of Guy's Hospital may be estimated from the statement that no less than 160 subjects were dissected from October, 1870, to June, 1872. Abnormal arrangements of muscles, arteries, nerves, etc., were observed in many instances, and the more important variations are here enumerated, and will be referred to with interest by those who are engaged in the study of anatomical science.

A Case of Progressive Caseous Disease of the Lymphatic Glands after Disease of the Knee-joint, is narrated by JAMES F. GOODHART, M.B. The chief

point of interest in this case was that in the left lung were numerous masses of cheesy material, which appeared to have been formed by extension of disease from the lymphatic glands at the root of the organ; the case, in the words of the author, "is one of the very few instances on record, in which, precisely as in the lower animals, a tuberculosis has extended from a local cause in a manner so direct that it cannot be questioned."

The next paper is *On Suppuration and Sphacelus of the Tooth-pulp;* by S. J. A. Salter, M.B., F.R.S. Suppuration of the tooth-pulp is believed by Mr. Salter to be a much commoner occurrence than is ordinarily supposed; he has so frequently found pus in small quantities in the pulps of comparatively healthy teeth, which have given rise to very moderate symptoms, that he is convinced that suppuration often exists without being suspected, the tooth recovering from its painful condition, and subsequently remaining as a useful and apparently a sound organ. With regard to the source of the pus in these cases, he adds—

"It has appeared to me that the pus in the tooth-pulp is formed at the expense and by the multiplication of the cells (granules of Purkinje) which so largely pervade the pulp, by their direct conversion into pus-cells, just as Virchow has shown that the pus is formed in parenchymatous organs by the proliferation of the development cells of the connective tissue."

The next paper is one of much practical interest and value; it is *On some of the New Growths developed in the Breast associated with Cysts;* by John Birkett. Nine cases are given in detail, illustrating the various forms of new growth which are met with in connection with cysts in the mammary region, and the author proposes a mode of classifying cysts of the breast, which, as it differs somewhat from the classifications commonly employed, we copy for our readers' edification.

Cysts in the breast.

- I. Associated, communicating, or connected with the ducts.
  - 1. Milk.
  - 2. Growths; with serum coagulable, and sometimes tinged with blood.
    - 1. Adenoid.
    - 2. Granulation cells.
    - 3. Cancer.
- II. Not connected with the ducts.
  - 1. Blood.
  - 2. Milk.
  - 3. Simple cysts.
  - 4. Entozoon cysts.
  - Serum not coagulable.
  - 5. Growths; with serum coagulable, tinged with blood, and containing cholesterine.
    - 1. Adenoid.
    - 2. Granulation cells.
    - 3. Cancer.

Mr. Birkett's paper is illustrated with two fine plates, each containing two figures.

The last papers in the volume are the *Statistical Accounts of the Patients treated in Guy's Hospital during* 1871 *and* 1872; by J. C. Steele, M.D. These papers contain elaborate tables of diseases, injuries, operations, etc., and furnish a great deal of valuable information in a form convenient for reference. Their study forces upon us one reflection, viz., that it is a matter for regret that the large amount of practical surgery mirrored forth in these tables should be so inadequately represented in the papers contained in the body of the volume. Excellent and admirable as they may be in themselves, such papers as, for instance, Dr. Moxon's on tumours, are not what we have been in the habit of looking for in the successive volumes of *Guy's Hospital Reports.*

J. A., Jr.

ART. XVI.—*Saint Thomas's Hospital Reports.* New Series. Edited by Dr. BRISTOWE, Dr. STONE, and Mr. CROFT. Vol. III. 8vo., pp. x., 381. London: J. & A. Churchill, 1873.

THIS volume of the St. Thomas's Reports attests the interest taken in the series by the Staff of the Hospital, and their desire to discharge the whole duty pertaining to their appointment. We are happy to be able to chronicle this fact, for hospital appointees too often forget that they hold their position in trust, for the education of their professional brethren and for the advancement of medical science, as well as for the cure of the sick and disabled.

The opening paper of the volume is a *Report on Cases of Rheumatic Fever treated between the spring of* 1868 *and the same period of* 1872, by THOMAS B. PEACOCK, M.D., Senior Physician to the Hospital. It will be remembered that in 1868 Dr. Peacock analyzed 146 cases of rheumatic fever treated by him during a series of years (see No. of this Journal for April, 1870, page 495), and since then he has had under his care 87 cases, which he analyzes in the present paper.

Dr. Peacock's cases prove the existence of a much greater tendency for the heart to be affected in the cases of rheumatism which occur in early life than in those in persons at more advanced ages. The proportion of cardiac complication does not appear to differ much according to the intensity of the disease, but there exists a very remarkable difference between the kind of cardiac complication which occurred in the two classes of cases; endocarditis being especially common in the cases of more severe disease, while pericarditis more particularly occurred in the slighter cases.

From a study of his cases Dr. Peacock finds—

"That when a case of rheumatic fever is complicated by the occurrence of simple pericarditis, the local disease will probably be recovered from without leaving behind it any obvious impairment of the condition of the heart. When, on the other hand, there is endocarditis, either alone or with pericarditis, and especially if the local disease becomes fully developed before the patient comes under treatment, there is great risk that some marked permanent defect in the heart will remain."

Of the 87 cases 1 died, and of the previously reported 146 cases 2 died, making, in the 233 cases, a mortality of 1.28 per cent. The treatment corresponded closely in the different cases.

"It consisted in the employment of bicarbonate of potash, alone or with nitrate of potash, in by far the majority of the cases. In some, and especially those of a more subacute character, iodide of potassium, bicarbonate of potash, and small doses of colchicum were used, and this was also the treatment in some cases in which subacute rheumatic affections remained after the more active symptoms had subsided. Dover's powder or opium was given when the patient was in great pain or was very restless at night, and with these remedies were occasionally combined, especially in the cases of cardiac or other complication, and when the tongue was much furred, small doses of gray powder or calomel.

"As local applications blisters were very generally placed around the limbs above the affected joints, and several of them were often applied at the same time, and they were always followed by poultices. In four cases the blisters were had recourse to without any constitutional treatment. In the cases in which cardiac complication occurred, blisters and poultices were very generally applied over the region of the heart, and in one instance leeches were used, the general treatment being otherwise the same as in other cases.

"During convalescence, quinia, bark, and iron were generally given; and

stimulants, brandy or wine, were exhibited during the progress of the cases as required."

The duration of treatment averaged twenty to twenty-two days.

In an article on the *Varieties of General Paralysis*, Dr. FREDERICK POLLARD discusses especially, 1, general paralysis of the insane; 2, general spinal paralysis, and 3, hysterical paralysis. We are happy to learn that Dr. Bristowe is preparing for these Reports a paper on Hysterical Paralysis, which, from the nature of the subject and the well-known ability of its author, cannot fail to prove interesting.

Dr. GERVIS reports a *Case of Annular Laceration of the Cervix Uteri occurring during Labour*, in which a ring of the cervix was completely separated behind and laterally, but retained its connection with the uterus in front. The almost collapsed condition of the patient did not permit of other treatment than replacing the ring as far as possible *in sitû*. Seven days afterward it was apparent on examination that the ring was uniting with the cervix and had much contracted, and on the 29th day a linear depression alone remained to show where the laceration had taken place.

The points of interest in this case are, firstly, its rarity, and secondly, its successful issue. Fortunately the slight connection of the loop of cervix with the uterus proved sufficient not only to maintain its vitality, but to enable it to share in the general contraction of the uterus which followed delivery.

Tubercular Fever and its Relation to Enteric Fever is the title of an interesting paper by Dr. JOHN HARLEY. He uses the term "tubercular fever" instead of acute tuberculosis, because he considers the latter term to imply a more chronic and less febrile condition than is exemplified in his cases.

The object of the paper is to prove not only that tubercle may form an actual component of enteric fever, but that fully developed enteric fever may be solely caused by the simultaneous eruption of miliary tubercle in the intestinal glands and in the lungs. Dr. Harley denies that a specific poison is the cause of enteric fever, because he has never seen it, and that the inflammatory product is a *specific* deposit, because were it, we would then have two kinds of specific exudation deposited simultaneously, the one in the intestinal glands, the other in the lungs or any other part; which he thinks is absurd.

Dr. Harley believes that enteric fever "may arise in any simple inflammatory condition of the body (particularly pneumonia) as soon as the inflammatory action involves the glands of the ileum or colon;" that "when the ileal glands alone are affected, the distinction between tubercular and enteric fevers is absolutely *nil*."

Dr. Harley appears to consider that tuberculous disease of the intestine may manifest itself as enteric fever. Although the diagnosis at the bedside of these two diseases is sometimes obscure, yet the pathological evidence of their difference is marked. Moreover a careful observation of the temperature, which Dr. Harley seems to have omitted in his cases, serves to throw light on the diagnosis. In enteric fever the temperature is high by the end of the first week, and keeps high for an indefinite time; when it begins to decline, its diminution is regular; whereas in acute phthisis the temperature is subject to great and sudden variations, even to the extent of six or seven degrees, and bears no regular relation with the respiration or pulse.

Dr. Harley has not considered it necessary to argue the correctness of his views, and we doubt if the present paper will make any converts to his peculiar doctrines.

Cases of Dysenteric Diarrhœa is the title of a paper by EDWARD CLAPTON, M.D. The term "Dysenteric Diarrhœa" the author applies to a class of cases

which are commonly met with, in which the symptoms are of a mixed character, and the parts chiefly involved are the upper portion of the colon and (either directly or sympathetically) the lower end of the ileum, instead of the lower part of the colon and the rectum, which are said to be the principal seats of the disease in tropical regions.

Four of the cases described by Dr. Clapton were syphilitic, and in each iodide of potassium almost at once afforded relief, and this, on the continuance of the drug, proved permanent. Other treatment was of little or no avail.

Dr. G. H. EVANS contributes notes of eight *cases of Empyema*. His cases do not present any peculiarities requiring notice here.

The succeeding paper, *On some points in the Medical History of the Clergy Mutual Assurance Society*, by W. H. STONER, F.R.C.P., and STEWART HELDER, Fellow of the Institute of Actuaries, presents some statistical and medical facts concerning the early history of this flourishing society, which will prove valuable to actuaries and others interested in life insurance.

Mr. J. F. PAYNE, in reporting a *Case of Injury to the Sympathetic Nerve in the Neck*, makes an interesting contribution to the pathology of the sympathetic nerve in man.

The subject of this paper when aged fifteen months presented a marked difference between the two sides of his face. The left side was pale, the palpebral fissure was distinctly smaller, and a little sunk in the head; there appeared to be no difference in the size of the globe. The left pupil was smaller than the right, and the eye seemed insufficiently provided with moisture. Although there was an appearance of ptosis of the left upper lid, no paralysis of this or any other facial muscle could be detected. The symptoms of the right side of the face were the opposite of those presented by the left. The right eye watered, the eyelids were opened wider, and the eye was more prominent, and the pupil larger than the left. There was a constant running from the right nostril. When the child from any cause flushed, the right side of his face became red, while the left remained pale. The right side only would sweat under any circumstances, the left remaining quite dry. This abnormality and inequality of the two sides of the face, the child is said to have presented from birth. No difference could be perceived between the two sides in the development of the teeth, condition of the tongue, lips or mouth, size and general nutrition of the parts. The condition of the hair was doubtful.

It will be remembered that Dr. Ogle described to the Royal Medical and Chirurgical Society (see No. of this Journal for April, 1870, p. 477), a case somewhat similar to this. Accepting the explanation which Dr. Ogle then gave, Mr. Payne concludes that the cervical sympathetic of the left side in the present case must have received (probably, judging from the history, at birth) an injury amounting to severance; that this, in all probability, first of all produced hyperæmia, increased secretion, and contracted pupil of that side (though of that stage there is no record or evidence), and that this stage was followed by the condition which became permanent, of anæmia, deficient secretion, and contracted pupil.

In a paper *On the Existence of Continued Currents in Fluids*, Mr. GEORGE RAINEY shows the effect of alterations in temperature upon the currents which, in a previous volume of the Reports, he described as existing in fluids in a so-called state of rest.

Dr. JOHN S. BRISTOWE contributes some very interesting and instructive *Cases illustrating the relative effects of Pressure on the Trachea and Pressure on the Recurrent Laryngeal Nerve, in producing Impairment of Voice and Dyspnœa*. Impairment of voice from paralysis of one of the vocal cords and

paroxysmal attacks of dyspnœa, are often symptomatic of intra-thoracic aneurism; but, Dr. Bristowe asks, are both these symptoms the result of pressure on the recurrent laryngeal nerve? In many cases of aneurism this condition exists, and the symptoms mentioned are present; but, on the other hand, we meet with cases of laryngeal paralysis in which there is no dyspnœa, and with cases of intra-thoracic tumour in which there is no such palsy, but in which, nevertheless, paroxysmal dyspnœa forms a marked feature. For instance, Dr. Bristowe relates a case of cancer of the œsophagus, in which hoarseness of voice and paralysis of the left vocal cord were present. Death suddenly occurred from hemorrhage due to perforation of the left common carotid. At the post-mortem examination the left recurrent laryngeal was found to be entirely destroyed in a good inch of its course by the advance of the cancer. This patient had no difficulty of breathing from first to last.

In another case there was equally clear proof, post-mortem, that the patient was the subject of complete destruction of the left recurrent laryngeal, and it is certain that, during life, he suffered from those symptoms which we attribute to that lesion, viz., impairment of laryngeal voice and difficulty in deglutition of fluids, owing to a tendency to pass into the trachea; but there was not a trace of dyspnœa, either persistent or paroxysmal.

As illustrating the effects of compression of the trachea alone, Dr. Bristowe narrates the case of a middle-aged woman admitted into the hospital with feverish symptoms, the cause of which was not very apparent. After lying there for two or three days, she was attacked suddenly with intense dyspnœa, followed in a minute or two by blackness of the face and insensibility. It was obvious that the patient was dying, and that there was a moderate sized, unsymmetrical tumour in the middle line of the neck immediately above the sternum, which, by the pressure it was exerting, was the cause of her alarming condition. On examining the tumour, it was perceived that a portion, at all events, of its bulk was cystic. A fine trocar and canula were passed into the tumour, and between three and four ounces of viscid, reddish-brown fluid were removed. As the fluid escaped, the dyspnœa diminished, her livid tint faded away, her pulse became slower, her eyes opened, and within a minute or two she appeared to be entirely restored to life and health. The patient suffered from a sub-sternal bronchocele; bronchocele, that is to say, with extension of the tumour behind the sternum, and between that bone and the trachea, a form of the disease which is always extremely dangerous from its liability to compress the trachea from before backwards, and thus to cause paroxysmal and ultimately fatal dyspnœa. There are no reasons here, nor is there generally any reason in such cases, to suspect any implication of the recurrent laryngeal.

Another patient of Dr. Bristowe died recently in the hospital from aortic aneurism. The local indications of the aneurism were obvious. He suffered from dyspnœa, liable to sudden terrible exacerbations. His respirations and cough were markedly stridulous. But there was never any indication of palsy of the vocal cord, nor any tendency for food to pass the wrong way; and his voice maintained its normal intonation. At the post-mortem the recurrent laryngeals were found unaffected.

These cases show, in the first place, that destruction of the functional activity of one recurrent laryngeal nerve is marked by paralysis of the corresponding vocal cord, which can be recognized by means of the laryngoscope, by impairment of the musical quality of the voice, and (probably) by some difficulty of swallowing, owing to the tendency of food to slip into the larynx; but is not necessarily attended with stridor or dyspnœa; and in the second place, that

compression of the trachea involves stridor and difficulty of breathing, which is often paroxysmal and liable to end in sudden death, but that it does not of itself interfere with perfect intonation, excepting only in so far as it may render the voice weak by diminishing the supply of wind to the vocal organ.

The exacerbations of dyspnœa occurring in narrowing of the trachea Dr. Bristowe thinks may be due to actual accumulation of mucus in or below the affected part, and to the difficulty of dislodging that mucus in consequence of the mechanical impediment existing there to the performance of an effective cough.

Tracheotomy, Dr. Bristowe, of course, thinks is useless in those cases, as the obstruction is not at the laryngeal orifice, but in the trachea at a point below the lowest possible point of operation.

In explanation of this valuable practical paper, Dr. Morell Mackenzie states (*London Med. Record*, April 9, 1873) that when the recurrent nerve is pressed upon, the vocal cord of the affected side does not remain in an intermediate position between extreme abduction and extreme adduction, but is always seen quite near the median line. Hence in these cases the arc of the laryngeal canal is always diminished. There is always, therefore, slight dyspnœa. This may not be apparent when the patient is perfectly quiet; but if the respiration be at all hurried or forced, slight stridor is almost invariably perceptible. There is also, generally, slight stridor in deep sleep. Nevertheless, it is perfectly true that severe dyspnœa of a paroxysmal character does not occur, when, owing to paralysis of the muscles, the vocal cord is in the position described.

Dr. Mackenzie moreover states that Dr. Bristowe's important deductions are strongly confirmed by the observation of cases of bilateral paralysis of the abductors of the vocal cords from pressure on both recurrents; though there is constant dyspnœa in these cases, there are no attacks of suffocation of a sudden and severe character. In addition to the causes referred to by Dr. Bristowe, as giving rise to the exacerbations, Dr. Mackenzie thinks it probable that, in the case of aneurismal tumours, the paroxysms of suffocation are sometimes brought on by a sudden increase in the volume of the sac.

The next paper, also by Dr. Bristowe, is *An Attempt to Explain the Cause of the Formation of the Spiral Fibre in Vegetable Cells and Vessels.*

Mr. W. M. ORD follows in a very interesting and well written article *On the Relation of Gout to Uric Acid*, which he sums up as follows:—

"1. Gout is a mode of decay of the whole system, marked by the deposit of urate of soda in and about joints, and by local inflammation of a particular kind.

"2. The deposit of the urate is a result of local or general disintegration, and is not to be regarded as a means of eliminating urate from the blood.

"3. The local inflammations do not necessarily depend upon the deposit of urate, and the deposit is not a consequence of inflammation; at the same time it is probable that excess of urate in the blood produces irritation of tissues.

"4. The local inflammation is peculiar in respect of the ease with which it is produced, of the pain by which it is attended, and of the products, which are chemical rather than structural; chemical substance of low molecule, tending to crystallize or to be dissolved, being formed in the part, instead of substances of high molecule tending to be organized. Interstitial subcrystalline deposit is common, suppuration rare, in gout.

"5. The local inflammations are set going by local exciting causes.

"6. The local degenerations and inflammations tend to infect the rest of the system through the blood, and to set up similar actions elsewhere through reflex nervous action."

The volume concludes with the *Report of the Obstetrical Department*, by Henry Gervis, M.D., and the *Medical Reports*, by S. E. Solly, F.R.C.S.

I. M. H.

Of the *Surgical* papers, the first is an interesting article *On Subastragaloid Dislocation of the Foot;* by William Mac Cormac, F.R.C.S. The author refers to the confusion which prevails among surgical writers, as to the nomenclature of the various dislocations met with in the neighbourhood of the ankle-joint, and expresses his preference for such a classification as Broca's; in fact, as pointed out by Mr. Mac Cormac, there are three distinct forms of displacement which occur in this region, and which should receive distinct names. Thus there may be a dislocation of the entire foot at the tibio-tarsal joint—properly called a dislocation of the foot or ankle; the astragalus may remain in place, while the rest of the foot is displaced backward or to either side—sub-astragaloid dislocation; or the astragalus itself may be separated from all its connections, in which case alone can there properly be said to be a dislocation of this bone. The sub-astragaloid luxation is believed by Mr. Mac Cormac to be more common than is often supposed, and he gives in the paper now under consideration details of four cases which have occurred under his own observation, and shows that several cases which have been described by Cooper, Chassaignac, and others, as dislocations of the astragalus, were really examples of the form of injury in question. With regard to *treatment*, Mr. Mac Cormac judiciously advises that, if reduction be found impracticable even with the aid of tenotomy, the surgeon should temporize, reserving excision of the astragalus as a secondary operation should it be found necessary.

We have next to consider a short paper by Mr. Francis Mason, F.R.C.S., *On the Treatment of Cicatrices after Burns.* The operation recommended and practised by Mr. Mason is analogous to Dieffenbach's ingenious mode of closing fistulæ in the penile portion of the male urethra. The cicatrix of the burn is first cut across from side to side, the incision extending in both directions into healthy skin, and the two halves of the scar are then thoroughly separated from the subjacent textures and allowed to retract, thus leaving a raw surface between their extremities. To cover this surface bridge-like flaps are now dissected up on either side, as in Dieffenbach's operation, and brought together in the median line with wire sutures, while the size of the remaining wounds is as much as possible diminished by the introduction of hare-lip pins. This operation has been practised by Mr. Mason in three cases—the offending cicatrices in two instances being in the neck, and in one at the bend of the elbow. While we have no doubt that Mr. M. honestly believes that this operation is original with himself, candour compels us to say that it is almost identical with that long since practised by the late Prof. Mütter, of this city, and by him described and illustrated with a wood-cut in the number of this Journal for July, 1842, page 78.

The next paper which demands our attention is a continuation of one in the first volume of the Reports,[1] and is *On Temperature in Surgical Cases;* by W. W. Wagstaffe, F.R.C.S. In his present communication Mr. Wagstaffe considers the temperature in *pyæmia;* the first rigor is accompanied by a sudden rise in temperature of from 2° to 6° F., the point reached by the thermometer during the first chill being nearly as high as that reached at any subsequent period, though the increase is less, for the reason that between the rigors the temperature often falls considerably below the normal standard.

[1] See No. of this Journal for April, 1871, p. 529.

The variations in temperature are not only very great in pyæmia, sometimes ranging over 10° or 11° F., but they occur with great irregularity; and this circumstance has in Mr. Wagstaffe's opinion a certain diagnostic value. As regards prognosis it can only be said that an unusually great depression of temperature often precedes death, and that a very high temperature, and increased frequency or increased extent of variations, are unfavourable signs. Mr. Wagstaffe's paper contains a table of twenty cases.

We have next to consider a communication from F. CHURCHILL, M.B., F.R.C.S., *On some of the Complications of Strangulated Hernia and their Diagnosis.* This is a paper of some practical interest, and gives details of several cases in which the symptoms were well adapted to cause uncertainty as to whether the surgeon had or had not to deal with a hernia in a state of strangulation. In one case, in which an inguino-scrotal hernia was known to have existed for many years, an exploratory operation showed that those symptoms which gave rise to the suspicion that strangulation had occurred, were really due to the formation of an abscess in the sheath of the spermatic cord; in another instance there was actually a strangulated hernia on one side, and a spermatocele on the other; in another case an abscess of the kidney and perityphlitis complicated an irreducible hernia, which however was not strangulated; while in a fourth case the sac of an old umbilical hernia was itself the seat of suppuration.

Mr. R. LIEBREICH, M.R.C.S., contributes a paper *On the Use and Abuse of Atropine*, (1) in iritis, (2) in keratitis, (3) in operations, (4) in injuries, and (5) as an aid to diagnosis. In *iritis*, Mr. Liebreich recommends the use of a four-grain solution of atropia, one or two drops being instilled at intervals of five minutes until complete dilatation of the pupil has been effected, and this dilatation being subsequently maintained by the employment of one or more instillations daily as long as may be required. The difficulties met with in using atropia in cases of iritis, are (1) too great intensity of the inflammatory process—to be remedied by the application of dry warmth, and, if necessary, by bleeding and the use of derivatives; (2) the presence of copious exudations in the anterior chamber—requiring the performance of a preliminary paracentesis; (3) the existence of completely organized adhesions—in which case constitutional treatment may often advantageously precede the use of the mydriatic; (4) symptoms of atropia poisoning, from a minute quantity of the drug entering the lachrymal ducts and thence reaching the nose and throat; (5) excessive sensibility of the palpebral skin and mucous membrane. To prevent the occurrence of atropia poisoning the lower lid may be slightly drawn down so as to evert the punctum lacrymale, during the instillation, or the throat may be simply rinsed out after the application is completed. For exceptional cases Mr. Liebreich employs a little instrument somewhat like a serrefine, to pinch up a fold of the lid, and thus evert the punctum. Should the use of atropia cause acute inflammation of the lids and conjunctiva—of which rare accident we have ourselves seen one well-marked example—the mydriatic should be abandoned, and a lotion of nitrate of silver substituted until the inflammation has subsided.

In the superficial forms of *keratitis*, Mr. Liebreich stops the application of atropia as soon as a single instillation produces an effect for twenty-four hours, then proceeding to use nitrate of silver; but in parenchymatous keratitis he continues the employment of the mydriatic for some time after the cessation of the deep irritation. In his remarks on the use of atropia as an aid to *diagnosis*, Mr. Liebreich expatiates upon the disadvantage of having the central hole of the ophthalmoscopic mirror either too large or too small, and adds:—

"I therefore propose to make the hole not smaller than two millimètres and the mirror not smaller than three centimètres, and to use in preference a thin silvered glass mirror, the centre of which is not perforated, but only deprived of the silver covering. The focus of the mirror may be eight or ten inches."

The next paper for our consideration is called *Statistics of Two Thousand Four Hundred and One Cases of Hernia;* by JOHN CROFT, F.R.C.S. Mr. Croft's figures, derived from his records of the National Truss Society, agree in most particulars with those obtained by Mr. Kingdon from the Reports of the City of London Truss Society. Mr. Croft's 2401 cases were observed in the course of seven years, and of the whole number of patients (none being counted twice) 1990 were males and 411 females—a proportion of nearly five to one. Mr. Kingdon's statistics likewise give a proportion of five males to one female, but Cloquet's estimate, derived from 457 dissections of hernia, gives a proportion of only two to one, while the herniotomy records of several London hospitals examined by Mr. Croft, tend to show that strangulation occurs almost as often in women as in men. "The truth," adds Mr. C., "may lie between the two sets of proportions, ... that is 3.033 to 1."

As regards *age*, 1355 of the 2401 patients were under, and 1046 over, thirty-five years of age, but by comparing these figures with those of the *total population* of London at each age, it is found that hernia is proportionally more frequent after than before middle age. The first quinquennium of life is, however, that in which hernia is most apt to occur, no less than 472 of Mr. Croft's cases having been in children under five years of age.

As is well known, *inguinal* is the most common form of hernia; of Mr. Croft's 2401 cases, 2066 were of this kind of rupture. Of the 2066 patients 1907 were males and only 159 females, while there were 189 females and only 40 males affected with *femoral* hernia. *Umbilical* rupture was observed in 42 males and in 62 females.

The last surgical paper calling for special comment is by Mr. SYDNEY JONES, F.R.C.S., M.B., and is called a *Contribution towards the Surgical Treatment of Diseased Joints.* This paper may be considered a sequel to others published by the author in previous volumes of the Reports,[1] and, like its predecessors, is adorned with lithographic plates—six in number in this instance, and containing twelve figures. In his present communication Mr. Jones gives the details of thirteen cases of excision, eleven of the knee, and one each of the ankle and wrist. He has not deviated as yet from the operative procedure employed in his other cases of knee excision, viz., by means of an oval flap taken from the front of the joint. But—

"At the same time he has a strong desire to adopt two lateral incisions, if a thorough performance of the operation by this mode could be matured. He has tried this plan on the dead subject, and finds it easy of performance; and his friend, Mr. Treves of Margate, has carried it out on the living, making use of a chain saw to resect the bones. On the dead subject the author has found it not difficult to pass close behind the bones a narrow blade of Butcher's saw; this can be afterwards fixed, and resection done from behind forwards."

For our own part we are so well satisfied with the simple transverse incision, originally suggested by Park, and more recently practised by Textor, Kempe, and Fergusson—and which we consider infinitely preferable to the anterior oval flap commonly employed by British surgeons—that we have no desire to substitute any other mode of operating; a transverse cicatrix, though doubtless objectionable in the case of the elbow where a movable joint is hoped for, is perfectly harmless in the case of the knee, where the surgeon endeavours to

[1] See Nos. of this Journal for April, 1871, p. 528, and Oct. 1872, p. 495.

obtain complete bony anchylosis. In speaking of the constitutional treatment when profuse suppuration occurs after excision, Mr. Jones makes a practical observation which is entirely conformable to our own experience :—

"In not a few cases," he says, "the author has found diarrhœa supervene in this suppurative stage, no doubt from systemic poisoning; this not to be remedied by astringents, but by quinine in large doses. It would not be desirable to arrest suddenly this elimination of poisonous material."

Mr. Jones has now done altogether thirty-two knee-joint excisions; recovery has followed in twenty-one instances, and death in five, while five cases are still under observation, and in one subsequent amputation was found necessary. The mortality of his terminated cases has been therefore 18.5 per cent., a proportion considerably less than that given by Penières for all ages.

The *Surgical Report*, for 1871, is contributed by W. ANDERSON, F.R.C.S., and contains sub-tables of surgical operations, and of cases of strangulated hernia, erysipelas, pyæmia, tetanus, reactionary and secondary hemorrhage, etc. It conveys, as usual, a great deal of practical information in a very condensed form.

The "new series" of St. Thomas's Hospital Reports, which now bids fair to be permanently successful, already takes rank with those which have been longer established, as a series of great value and deep professional interest.

J. A., JR.

ART. XVII.—*The Liverpool and Manchester Medical and Surgical Reports*, 1873. Edited by S. MESSENGER BRADLEY, F.R.C.S., P. M. BRAIDWOOD, M.D., REGINALD HARRISON, F.R.C.S., WALTER WHITEHAD, F.R.C.S.E. 8vo. pp. xviii. 216. Manchester: J. E. Cornish, 1873.

THE present volume is an amalgamation of the Liverpool and the Manchester Reports, and we regret to find that it affords no evidence of increased literary strength from this union.

According to our custom we shall first notice the medical papers of the volume, and afterwards those specially pertaining to surgery.

The first article is *On Climate and its Influences;* by THOMAS INMAN, M.D., and is a cursory, yet pleasantly written notice of the various places on the south coast of France and west coast of Italy, which are usually resorted to by consumptives.

Dr. WILLIAM ROBERTS offers some *Clinical Remarks on Hydatid Cysts*, based on the examination of six cases. He finds that the fluid of hydatid cysts varies in character according as the cyst contains living or dead echinococci. If the echinococci be living, the fluid is limpid, colourless, or faintly opalescent, with small white granules (broods of scolices or echinococci heads) floating in it, and may be slightly albuminous. When the parasite dies, the fluid rapidly changes; it becomes largely albuminous, and afterwards loses its transparency and becomes thick, white, and opaque, so as to resemble pus in its naked eye characters.

In a case of hydatid of the liver, Dr. Roberts used large doses of iodide of potassium, as much as thirty grains three times a day, with the result, apparently, of destroying the parasite. The tumour had been steadily growing up to the moment when the patient began to take the iodide, and even for ten days after; then diminution and retrogression commenced, and went on progressively,

though very slowly, until the cyst had entirely disappeared. This result certainly demands the trial of the drug in similar cases.

Mr. William Carter contributes *Notes of Cases*. The first is on the good effects obtained in a case of local paralysis, by the hypodermic use of a concentrated solution of strychnia. The largest amount injected at any one time was three twenty-fifths of a grain. When a concentrated solution is hypodermically injected, the effects are believed to be more local than when it is more diluted, and consequently, what would at first sight appear to be dangerous doses, may be thus administered without the system generally being injuriously affected.

Following the above are notes of a case of paralysis of the expiratory muscles from the pressure of ascitic fluid, in which the induced current was applied over the abdominal walls and lower intercostal muscles, with marked benefit. Some observations are also given on the use of digested milk in cases of great irritability of the stomach; on the tincture of veratrum viride in acute rheumatism; and on a case of hernia into the pericardium.

Dr. Henry Barnes is the author of a very interesting article *On Eclampsia Nutans*—a peculiar convulsive disorder occurring in children, and characterized by paroxysms of rapid and involuntary bowing or nodding of the head. This disease is of very rare occurrence and does not appear to have attracted the attention of physicians until about thirty years ago. The first case believed to be recorded is one by Mr. West, of Tunbridge Wells, England, who in the *Lancet* for February 13, 1841, gives a description of the disease as he observed it in his own son (see *American Journal of Medical Science* July, 1841, page 187).

Dr. Barnes has been able to find the record of but eight cases, and from a careful study of these, together with a case which recently occurred in his practice, he inclines to the belief that the disease is closely allied to epilepsy, an opinion which is confirmed by the efficacy of bromide of potassium in Dr. Barnes's case, and by the fact that it, like epilepsy, leads to impairment of the intellect. The convulsive paroxysms vary in frequency from one to fifteen in the twenty-four hours, and, in severity, lasting for a few seconds or a few minutes. Usually, at the commencement of the attack, the movements are slow and more like ordinary salutations, hence the name salaam convulsions once given to it; but as the disease progresses they become frightfully rapid, and when severe often cause fatal exhaustion. The earliest age at which the disease has been noticed is four months, and the oldest case recorded was six years. The worst attacks come on after sleep; but even in these consciousness is not lost, but the child seems bewildered and frightened. Children of both sexes are equally liable to the disease, and it appears to be independent of dentition. This affection may come on suddenly without premonitory symptoms; in other cases, headache, drowsiness, a heavy and peculiar look about the eyes, and strabismus have been observed. After it has lasted for some time, the general health usually becomes affected, and there is great debility. In bad cases other convulsive movements become added, such as bending forward of the body, convulsive jerkings of the arms and legs, and frequently the muscles of the face become affected, especially the orbicularis palpebrarum. Occasionally general convulsions intervene, and then great impairment of the mind or complete idiocy usually terminates the case.

As none of the cases died during the progress of the disease, nothing is known of its morbid anatomy. The treatment used has been various and unsatisfactory, but the result obtained in Dr. Barnes's case points to the efficacy of bromide of potassium.

Mr. FRANCIS VACHER, of Birkenhead, offers some *Remarks on a New Midwifery Forceps.*

Dr. RICHARD CATON contributes *Notes on the Use of some of the Newer Therapeutic Agents in the Diseases of Children.* Dr. Caton has found pepsin of great value in that form of dyspepsia of infants in which milk is not digested. The second drug particularly experimented with is the tribasic phosphate of soda of the British Pharmacopœia. When the symptoms termed "bilious" are present, in jaundice, in those states of the system where it is obvious that neither assimilation nor the excretion of waste material is being performed properly, Dr. Caton has found great advantage from the use of the phosphate of soda. Chlorate of potash he has found serviceable in stomatitis, aphthous conditions of the mouth and throat, and ulceration of the tonsils. Sulphurous acid in the form of spray he has used in several cases of diphtheria, with apparent advantage.

In the numerous cases in which cow's milk is vomited by infants, after much pain and distress, in the form of hard curds of the size of a finger, Dr. Caton has derived great advantage from following Prof. Vogel's recommendation that two or three grains of the carbonate of soda be added to each bottle of milk. By thus making the milk slightly more alkaline, the sodium-albumen or casein forms a loose and easily digested coagulum, like that of human milk.

On Certain Forms of Visceral Neuralgia is the title of an article by Dr. CLIFFORD ALLBUTT, of Leeds. It appears that the author is more fortunate than most of his brethren in finding neuralgia "to be one of those [diseases] most amenable to palliative and curative interference." "Subsidiary remedies apart," he says, "it would be hard to find better antidotes against any human suffering than we have against nerve pain in quinia, in iron, in arsenic, in the hypodermic use of morphia, in the continuous battery current, in change of climate, and in a well-ordered diet."

In the present paper Dr. Allbutt writes especially of gastralgia and ovaralgia. In the treatment of the former he recommends that the diet should be liberal and taken in small quantities at frequent intervals. All causes of "wear" must be removed and where anæmia exists, iron and aloes should be given, and quinia and strychnia in small doses makes a "capital chronic medicine for gastralgia." But of all the remedies "arsenic is king." Dr. Allbutt always prescribes Fowler's solution in any simple water, a dose of which, containing three to five drops of the solution, is taken largely diluted thrice daily with meals, and should be carefully pushed to the edge of its physiological effects. The only palliative remedy of any importance is morphia used hypodermically and ether and chloroform given internally in small doses.

In iron and arsenic, as chronic remedies, and in quinia or hypodermics of morphia, as immediate remedies, Dr. Allbutt says we may find a tolerably sure cure for neuralgia.

In the succeeding article *On Cephalotripsy*, Dr. J. WALLACE states that he feels sure that this operation, skilfully performed at the proper stage of labour, will very considerably reduce the maternal mortality, not only because of its superiority over the older operations, but, also perhaps, for the same reasons that craniotomy and the crotchet in the hands of some accoucheurs are very much less fatal than in the hands of others.

In an article on *Induction of Premature Labour*, Mr. WALTER WHITEHEAD attributes almost all the failures which have attended Barnes's method to the bougie escaping from the uterus before it has fulfilled its object. To obviate this Mr. Whitehead attaches the bougie to an air pessary with the hope of ful-

filling two objects, 1, to keep the bougie in the uterus; 2, to dilate the vagina and thus facilitate the ulterior stages of labour by acting as an additional excitant; and, moreover, expanding the channel through which the head is to pass. Mr. Whitehead has tried this plan in six cases, and found it safe and efficient.

Mr. J. Campbell Brown writes *On Butter* and the mode of analyzing it. A subject which may be interesting to a number of medical readers, but in a volume of hospital reports, is certainly out of place. I. M. H.

The first surgical paper we notice is one by Mr. Thomas Windsor, *On the Use of Atropine in the Treatment of Short Sight.* Mr. Windsor's attention was first directed to the subject by the writings of Professor Schiess, some of whose statistics and conclusions are given. We are told, what has long been known to oculists, that most myopic eyes are diseased, which is in direct opposition to the wide-spread general opinion that near-sighted eyes are especially good to last—an opinion which the observations of ophthalmologists should entirely dissipate. Myopic elongation of the globe is very often preceded, in the experience of Messrs. Windsor and Schiess, by spasm of the ciliary muscle, which they have found can be overcome by the methodical continued use of atropia, and the elongation of the eyeball, due to strained accommodation, can thus be prevented. The conclusions arrived at are: "1. Slight myopia may be entirely due to spasm of the ciliary muscle. 2. Many cases, in which the eye is elongated, are accompanied and made worse by spasm of this muscle. 3. After some time spasm is replaced by elongation. 4. Spasm of the ciliary muscle may be removed by the methodical use of atropia. 5. Myopia may be cured in some, and its increase prevented in other cases by this treatment."

As an appendix to his paper in the previous volume of the Manchester Reports on *The Urethral Douche*, Mr. Windsor refers to the authors who have preceded him in writing upon the same subject, namely, M. Reliquet, Dr. A. Hewson, and Mr. A. E. Durham, giving to them a full meed of credit for their investigations, though he still thinks that his own plan of applying the principle is the best. The addendum is a graceful one, and was needed. Mr. W. is both a forcible and pleasing writer, and we should gladly see longer contributions from his pen.

Mr. James Taylor, Surgeon to the Chester General Infirmary, contributes *A Method of Treating Wounds, with Cases*, said method consisting in leaving them to the unaided powers of nature, as was long ago advocated by Mr. Teale, of Leeds. The results reached by Mr. Taylor appear to have been such as would be looked for by any-well educated surgeon, who is in the habit of placing dressings upon recent wounds for the protection they afford and who expects that they will be curative only in so far as they allow nature to act unimpeded.

Mr. W. Macfie Campbell narrates the results of the *Treatment of Amputations by Cotton-Wool* in the Northern Hospital. The method of M. Guérin was somewhat modified, the wounds being brought together by sutures and covered with a carbolized dressing before their envelopment in the wool. Our own limited experience with this dressing leads us to endorse Mr. Campbell's statement that it is exceedingly important that *all* bleeding should be stopped, and the wound allowed to glaze, before it is done up in the wool, as, in those cases where no oozing took place the results were favourable, but where the discharge was sufficient to soak through the dressing and make its speedy removal necessary no advantage appeared to attend its use.

The next article is styled *A Case of Rare Vaginal Abnormality* (!), by Roderick Maclaren, M.D., Surgeon to the Carlisle Dispensary. *The abnormity* was a

longitudinal septum extending from a short distance behind the hymen to the os uteri, to one lip of which it was attached, so that on one side there existed a narrow vagina which communicated with the uterus, while on the other was a canal terminating in a cul de sac. As the presence of this septum appeared to cause inconvenience and would only admit of the introduction of two fingers into the vagina at once, it was removed by scissors, and by keeping the parts distended with a tampon, a vagina sufficiently capacious to suit the ideas of the patient and her surgeon was easily obtained. There was no evidence of a divided uterus.

The next surgical paper is *On the Extirpation of Enlarged Lymphatic Glands*, by RUSHTON PARKER, F.R.C.S., who advocates the removal of scrofulous glands early, before softening has occurred, because the treatment is the shortest, it is certain to get rid of the manifestations of the disease, and the resulting cicatrix need be simply linear, which is greatly preferable to a puckered scar. These conclusions are based upon twenty-six operations on sixteen patients. Of the latter, seven were well in two weeks; four in three weeks; two in four weeks; one in five weeks; one in ten weeks, while one had not recovered in six months. In view of the often long persistence of these cases, the results obtained are gratifying and such as should induce us to give the claims of the proceeding due consideration; especially is this so when we know that the operation is endorsed and practised by so eminent a pathologist as Billroth. The operation is best restricted to those cases where the gland has been long enlarged without change of consistence, and where the tissural connections are free.

Dr. WILLIAM ROBERTS treats in the next article of *Exploring and Tapping* by means of a modified hypodermic syringe. Various sized canulas are used, and should the evacuation go on slowly we are advised to attach an India-rubber tube, filled with water, to the base of the canula and allow the accumulation to be emptied by the siphon while the patient lies comfortably in bed. Dr. Roberts has also found that small portions of semisolid tumours can be coaxed through the canula into the barrel of the syringe by pumping, and thus made available for microscopic inspection; we would only say in passing that semisolid tumours are very apt to be excited into much increased activity by any method of exploration. Illustrations of the instruments are given.

Notes on Syphilis, by S. M. BRADLEY, F.R.C.S., are continued from the second volume of the Manchester Reports, and two cases are reported in which very mild secondary symptoms followed sores which were unaccompanied with induration or multiple adenopathy. From this text is argued the unity of the syphilitic poison, which it is thought important to establish as a step towards proving that syphilis may be converted into struma, cancer, etc. A little further on is recorded a case of bubon d'emblée, or rather a case in which the initial lesion in a woman was not discovered. By reasoning, which we confess to be beyond our powers, Mr. Bradley argues that, admitting the fact of bubon d'emblée, which he takes it for granted has been established by his case just cited, we must admit the unity of syphilis. Why? Because "if it is possible to infect the system with syphilis through an unbroken cuticle, it must be possible to infect the system through *any* kind of local sore," the conclusion is certainly true, *provided* true syphilitic virus is brought into contact with the sore, nor did we know that any one denied the fact, but Mr. B.'s forte appears to lie in setting up lay figures which he batters like a veritable Quixote.

Mr. GEORGE SOUTHAM, Surgeon to the Manchester Royal Infirmary, narrates an instance of *Dislocation of the Patella on its Edge* produced in the person of

a man of twenty, by wrestling. The luxation was reduced by bending the rigid limb, after the administration of chloroform; but it was found necessary to apply an elastic knee-cap for some time afterwards to counteract the relaxation of the ligaments. Reference is made to the literature of this rare form of accident and the article though short is one of interest.

Next in order is a case of *Ligature of Subclavian Artery for Axillary Aneurism*, by J. W. Stocks of the Salford Hospital. After the failure of prolonged attempts to effect a cure by pressure, the vessel was ligated in its third part by a carbolized catgut ligature and dressed antiseptically. The patient died on the twelfth day from asthenia with some solidification of one lung though the pleura was uninjured by the operation. The point of special interest, in the case is the fact that though the artery was closely constricted above the aneurism and filled with a fibrinous plug, the ligature itself had disappeared entirely, thus furnishing another instance in proof of the value of carbolized catgut.

James Ross, M.D., writes upon *The Origin of Cancer*, taking it for granted that there always exists an hereditary predisposition and that it springs neither from contagion nor inoculation. Dr. Ross states that his object is "to show that cancer may have been developed from innocent epithelial growths, by continued irritation acting upon these growths as they appear in a succession of individuals, and causing them to deviate further and further from healthy tissues." This semi-Darwinian position is supported by specious reasoning, which, however, does not admit of abbreviation.

Mr. David J. Hamilton, of the Northern Hospital, Liverpool, gives some lucid directions for the application of *Some of the More Recent Methods of Treating Wounds on Antiseptic Principles*, founded upon the observation of more than three thousand cases. An ardent admirer of the system, he thinks the field of operative surgery has been enlarged by its introduction, and that with its skilful and universal application pyæmia and erysipelas will become things of the past. We are warned against allowing the stronger solutions of the acid to touch the raw surfaces, lest we destroy not only the poisonous atmospheric germs, but the vitality of the normal plasma itself. The whole system may be condensed into a few sentences; close the wound after washing it with a weak solution; protect it from direct contact with the acid which should be placed outside the protective so that an atmosphere of carbolic acid will surround the part, and germs of disease must first pass through it before they can reach the wound; all the dressing must be done under a carbolized spray from some form of atomizer. As will be seen the system(!) is based upon the supposition that man is only defiled from without, never from that which is within.

We notice next an interesting case by Mr. Edward Lund, Surgeon to the Manchester Royal Infirmary, where *A Knife was Swallowed and Passed through the Abdominal Walls* nine weeks afterwards. A female twenty-six years old, during an attack of delirium tremens, swallowed a dessert knife, the metal part of which measured six inches and a half. Eight weeks later a globular swelling made its appearance in the right side nearly on a level with the umbilicus, and the sharp edge of a foreign body could be felt distending the skin, which was freely movable over the tumour. After some days the blade of the knife protruded through the skin, and was easily removed by slight traction without additional incision. The ivory handle had been entirely digested and the extremity of the blade was rendered very thin by the action of the gastric juice. The nervous shock was considerable at the time of the removal of the offending body, but a good recovery was made without the formation of a gastric fistula.

The next paper by E. R. BICKERSTETH, Surgeon to the Liverpool Royal Infirmary, is also one of very great interest, being the history of a case of *Gluteal Aneurism*, which occurred in the person of a seaman who had three years previously, in Japan, fallen upon a sheath knife. Severe bleeding had occurred at the time of the accident, but the small wound being closed with sutures rapidly healed, and an extensive aneurism resulted. Three weeks before his arrival at Liverpool from Rotterdam the old cicatrix burst, and a quart of blood was lost; but the wound again healed. When seen by Mr. Bickersteth a pulsating tumour, the size of a child's head, existed in the right buttock, and there was no doubt about the diagnosis. Relying upon the aortic tourniquet to control the hemorrhage, on the 21st of March, Mr. B. made an incision into the sac nine inches long, from the anterior crest of the ilium to the tuberosity of the ischium, and, having turned out the clots, found the gluteal artery cut across at its point of emergence from the pelvis. With some difficulty carbolized catgut ligatures were applied to both ends of the vessel, and the large wound was brought together with many points of suture. On the 22d day of April, the patient left the hospital well, to return to his duties. We congratulate Mr. Bickersteth on this exceedingly happy termination to so serious a case, and think with him that the aortic compressor affords a very valuable aid, which those who meet with similar cases will do well to avail themselves of.

We deem it our duty in this connection to refer to the case published in the eighth volume of *Saint Bartholomew's Hospital Reports* (see preceding number of this Journal, p. 195), by Mr. Holden, where fatal secondary hemorrhage followed the ligature of the femoral artery by a carbolized catgut ligature, after extensive suppuration in the wound which was treated on antiseptic principles.

In some *Remarks upon the Shape of English Skulls*, Mr. BRADLEY tells us that his observation of European skulls has abundantly confirmed the view of Prof. Owen advanced some years since, that the marked uniformity evident in West African skulls can be fairly considered to depend upon the uniformity of pursuits in that locality; but Mr. Bradley concludes that the effects of civilization are evident even in the most debased and vicious portions of the community, for the heads of sixty-six prisoners in the Manchester gaol, examined by him, presented very marked variations.

Mr. GEORGE E. WALKER, Surgeon to St. Paul's Hospital, Liverpool, follows with *Cases of Night Blindness and detached Retina*, two of each kind being narrated. Arguing from the fact demonstrated by Dr. Brown-Séquard some years ago, that strychnia dilates the capillaries of the spinal cord, Mr. Walker thought that the same effect might be produced in the eye ground when the circulation is known to be sluggish, and accordingly tried the remedy both by the mouth and dropped into the conjunctival sac, as he thinks, with some benefit, though to us the results obtained seem somewhat indefinite.

D. LLOYD ROBERTS, M.D., F.R.C.P. (Lond.), records *A Case of Cyst removed by Abdominal Section*, which had no connection with either the uterus or ovaries. It was covered with peritoneum, being bound down by it posteriorly; there was no pedicle, but an abundant vascular supply was derived directly from the investing serous membrane. Catgut ligatures were applied to the divided vessels, and the patient made a good recovery. The cyst was filled with a clear colourless fluid, feebly albuminous, with a specific gravity of 1004. The tumour weighed 17¾ pounds, and was regarded by Dr. Roberts as a non fecundated ovule which had escaped into the abdominal cavity.

Another paper entitled, *Case of a Foreign Body in the Bladder with Stricture of the Urethra*, by Mr. LUND, concludes the surgical essays. An engineer

aged thirty-three, had suffered from stricture for thirteen years, and for the last four had been in the habit of passing bougies himself. Having used a flexible No. 3, instead of a number 4, while the bladder was very full, the bougie slipped from his grasp and disappeared, the ivory knob remaining in his hand; after five days he began to experience pain upon urinating, which increased until the advice of a surgeon was sought. Mr. Lund, aided by the history of the case, detected a soft foreign body in the bladder, and as soon afterwards as the business of the patient permitted, undertook an operation for its removal. Six ounces of water were first injected into the bladder through a small catheter, and the stricture was split by a Holt's dilator. A small sized Coxeter's lithotrite was then introduced, but the foreign body could not be felt—ultimately, the bladder having been partly emptied, the offending substance was found, caught between the blades of the lithotrite and easily withdrawn entire, there being very little deposit on it. The patient was treated as recommended by Mr. Holt for a ruptured urethra, and did well until the fourth day, when, as Mr. Lund thinks, owing to imprudent exertion, severe urethral fever was developed, which went on to the formation of pyæmic abscesses. After a serious illness, prolonged through five months, the patient recovered with the stricture cured. The case is interesting as an illustration of that connection between urethral fever and pyæmia which has attracted the notice of surgeons for some years back. We ourselves would have preferred passing a small staff into the bladder, and removing the foreign body by an external incision, to dragging it through an already lacerated urethra, and can feel no surprise that the latter proceeding was followed by such severe symptoms.

A *Table of Major Operations* performed during twelve months at six hospitals in Liverpool and Manchester, possesses no value and requires no comment.

In commenting upon the volume of last year we expressed the hope that such a field as Manchester, with improved tillage, would yield better fruit, but it would seem that the efforts of the Lancashire surgeons have been directed to increasing the size of their plot rather than to improving the opportunities they already had. To form an imposing annual volume out of short articles or reports of solitary cases, which would find their fitting place in a weekly journal, seems but a poor policy, and one that cannot long survive, no matter how well supported by thick paper and well-leaded type. S. A.

ART. XVIII.—*Fourth Annual Report of the State Board of Health of Massachusetts.* January, 1873. 8vo. pp. xiii., 473. Boston, 1873.

THOSE readers who retain any recollection of our remarks upon the reports preceding this one, will hardly need to be told that the present volume is a work of great value and extreme interest. The composition of the Board is the same as at the issue of the third report, and with but one exception, the same as the year previous. Dr. Henry I. Bowditch as Chairman, and Dr. George Derby as Secretary, again exhibit their peculiar adaptedness to their positions. As in previous reports, investigations of particular subjects have been committed to men of known eminence in their several departments. Experience and fitness thus continue to govern the constitution and the appointments of the Board.

In their general report, the Board briefly state the principal matters that have engaged their attention during the past year, advert to the results of former

legislation and suggest additional enactments; and direct the notice of the legislature to the essays and reports on special subjects, which have been prepared under their direction.

The first and longest of these papers was prepared by Prof. WM. R. NICHOLS, of the Massachusetts Institute of Technology, and Dr. DERBY. It is in response to a legislative order instructing the Board to investigate the subject of *Sewerage, Sewage, Pollution of Streams, and the Water-supply of Towns.* It was requested that the consideration of the sewage question should embrace, first, utilization as a fertilizer; second, the sanitary results of pouring sewage into the waters of the State; third, the increasing joint use of the water-courses for sewers and as sources of supply for domestic use. Upon these points it was requested that the views of the Board should be fully presented, together with such results of foreign experiment or observation as might be pertinent. The essay elicited by this vote is the first systematic and exhaustive treatment of the subject that has appeared in these volumes, though frequent references to the questions involved have before occurred. As one of the great social problems of our time both in a sanitary and an economic point of view, the disposal of sewage demands the fullest consideration. Every year the increasing density of population adds to the gravity and magnitude of the question. As connected with the purity of our water-supply, the subject is already one of vital moment to our own city. That the meeting of the different requirements of the problem involves great difficulties, renders it all the more important that attention should at once be given to it.

Reference is made, in the paper before us, to the so-called "dry-earth system." While admitted to be practicable and excellent, in certain circumstances and on a limited scale, this plan is shown to be utterly inapplicable and inadequate to the necessities of large cities. No practically obtainable quantity of dry earth would suffice to deodourize and absorb the enormous liquid sewage of a city. Neither could the earth be dried or removed at reasonable cost. The actual excretions alone of each human body would require four or five pounds of earth daily. This in a city of 100,000 inhabitants would amount to 250 tons daily; and this to be distributed, and re-collected, among say 10,000 houses. Even if otherwise practicable, the care and intelligence necessary to the success of this method could not be expected among the lowest classes. We are glad that the Massachusetts Board have applied the touchstone of common sense to the extravagant pretensions of some advocates of this plan, and have shown the utter folly of offering it as a means of relief to large cities. In connection with the detached privies common near country houses and in small villages, the dry-earth system has real advantages. Too often, however, in places where otherwise it would be desirable, the amount of labour required to carry it on will be a fatal objection to its use.

While commending the use of trapped water-closets and waste-pipes emptying into close sewers, the report points out the need of some device to prevent that escape of sewer-gas into houses, which, under certain circumstances, will occur in spite of the best traps. To obviate this trouble it is recommended that the main perpendicular sewer-pipe of each house be carried up above the roof, there to be freely open at the top. If this be impracticable in old houses, a small lead pipe connecting the soil pipe with the upper air will generally answer the purpose. If such an arrangement were made in all houses, pressure would be equalized throughout the whole system of sewers. The sudden influx of water from the streets or the setting back of tide-water from the outlets, would no longer cause foul air to bubble up through every water-closet, since the gases would find free egress and immediate dilution among the rapid cur-

rents of the upper air. Of course, however, the usual traps would be retained at all lower openings into the sewer-pipes.

Different methods of disposing of ashes and kitchen refuse are mentioned, but no suggestions are offered upon this troublesome matter.

To the question, what is in our country the best practicable disposition to be made of the sewage of cities? the answer given is, its discharge into tide-waters or into running streams. To the apparent wastefulness of this course it is replied that the utilization of the material costs more than the value of the product obtained. In many cases, however, the necessity of preserving the water-courses from injurious and offensive contamination imperatively demands a partial purification of the fluids which are poured into them. Here, therefore, processes not warranted by the mere money return may be the means of recovering a portion of the cost rendered necessary upon other grounds. Recognizing fully the great importance and the many aspects of the whole subject, our writers state their belief, founded on thorough investigation and after observation of the varied experiments made of late in England, that sewage may be so treated chemically as that the subsequent addition of its liquid residue to rivers shall not destroy the fish or render the waters offensive or unfit for any purpose except drinking. The expense of such process, if not fully covered by the value of the resulting fertilizers, will yet be reduced to something moderate. As cities and towns increase in number and in population, especially along the borders of our rivers, the contamination of the water, hitherto comparatively slight and tolerable, will become unbearable unless some efficient system of treatment be adopted. Already, indeed, some streams have become a nuisance, near large cities; and in many communities serious anxiety is felt in view of the yearly augmented pollution of the water-supply. It is obvious that the Massachusetts Board have not begun to agitate this question one moment too soon.

Of many plans investigated and described in this paper, for separating the offensive material from sewage before allowing it to enter the rivers, the preference is given to the process technically known as intermittent filtration. By it, it is believed the rivers would remain inoffensive, while vast amounts of fertilizing matter would be secured for agriculture. To cities upon tide-water, it is only recommended that their sewers be extended out sufficiently far to meet a strong current.

To show the exact amount and kind of impurity caused in running streams by the admixture of sewage, minute and careful analyses have been made of water from different points in several Massachusetts rivers, whose shores are most thickly covered with factory towns. The amount of adventitious matter found, is less than would have been expected. Naturally, it varies much at different times—the same stream which is practically pure during spring freshets, is very foul during midsummer droughts. The Board believe that with only reasonable care and cleanliness on the part of the dwellers on their banks, many of these rivers may for many years retain sufficient purity for most purposes, without alteration or diversion of the sewage.

Much of the foul material borne into the streams is deposited on the bottom; some undergoes chemical change of various kinds. The popular notion, that no matter how much filth enters a running stream, it is all destroyed or transformed before floating many miles by oxidation, is, we are told, more consolatory than correct. Some such purification does occur during the seaward flow of contaminated rivers; but is by no means as rapid or as complete as has been believed.

For supplies of pure water for domestic purposes, the Board recommend

recourse to the lakes and ponds so thickly scattered over New England. They advert to the singular abundance and purity of these reservoirs, and forcibly urge the policy of preserving the woodlands that now generally surround them, and of planting new forests upon tracts not available for agriculture, to replace those destroyed in thoughtlessness or cupidity. They desire that the people be made to realize the importance of preserving with jealous care the purity of these fountains.

That the people may hear both sides of an important question, we find, from the pen of Hon. P. E. ALDRICH, a member of the Board, *Additional Analysis of Evidence concerning Intoxicating Liquors*, with a statement of arguments and evidence against encouraging or permitting the sale of light wines and beer. Mr. Aldrich holds opinions directly opposed to those so ably advocated in a former report by Dr. Bowditch. The doctor assumed that men would use stimulants; but that if freely supplied with light and pure wines and beers, they would cease to crave or to use strong liquors. The present writer maintains on the contrary, that people beginning with the lighter potations finally pass to the stronger; and that men once possessed with the craving for spirits are never satisfied again with the weaker beverage. His argument is largely founded upon testimony as to results which followed in Great Britain from the passage of an act favouring the opening of beer-houses. The testimony was elicited by a committee on intemperance, appointed by the lower house of convocation of the province of Canterbury. It was the decided conviction of the committee from the evidence brought before them, that among the fourteen million people comprised in their province, cheap beer had not only failed to supplant spirits, but had unquestionably aggravated the evils it was designed to alleviate. It should, however, be borne in mind that there are other causes in action which may be responsible for that increased intemperance which the committee attribute to cheap beer. The writer of the paper before us, unlike Dr. Bowditch, believes in the right and policy of suppressing by law all sale of stimulants by the glass. Besides the English evidence, he quotes numerous brief and general utterances of various American clergymen, lawyers, and physicians, which support his own views, though giving little or no ground or reason for their opinions.

The increase of intemperance in France should hardly be attributed to cheapness of light wines, to the ignoring of all the influences which for many years have been active in that unfortunate land. If it be true, as alleged, that the wine-growing districts of our own land exhibit increased intemperance and an increased demand for strong liquors, the facts must go far to support the view of the party represented by Mr. Aldrich.

The report by Dr. H. K. OLIVER upon *The Character of Substances used for Flavouring Articles of Food and Drink*, should be read by all housekeepers. It was found that an oil of bitter almonds, containing an alarming proportion of prussic acid, is in common use by confectioners, in a very concentrated form. The danger is augmented by the variable proportion of the acid in different samples. The highest authorities state that the desired flavour is not dependent at all upon the presence of the poison. Of 150 pounds imported into Boston yearly, one-third was used by three wholesale druggists, and nearly all the remainder by a manufacturer of patent medicines. An artificial imitation of the oil, nitro-benzol, used for soaps, and possibly to some extent by confectioners, is a still more deadly poison, though free from prussic acid.

Artificial fruit-essences are largely used for candies, and in soda-water syrups used in the country and at second class shops in the cities. Sickness has been traced to the use of confections thus flavoured.

Jellies, bearing the names of various fruits, are largely artificial. If in this country we escape articles utterly destitute of all fruit, it is because the cheapness of apples affords a convenient base. By far the larger part of the jellies sold in our shops are made of apples, flavoured and coloured to resemble other fruits. The use of essences, ethers, and an immense variety of drugs, in making artificial liquors or in flavouring and improving crude spirits, has long obtained in Massachusetts as elsewhere. The Board believe, however, that such adulteration is, in the large cities, nearly confined to the lowest class of retailers, but unfortunately is a little less rare in the country towns. Beer and ale are found to be free from harmful ingredients.

Extract of vanilla, even when purely made, has been known to undergo poisonous change when long kept.

An admirable practical paper on the *Drainage for Health*, of cellars and yards and the construction and care of wells, sinks, and sewers, should be read by every householder in the rural districts.

Dr. Edward Jarvis contributes a paper worthy of his reputation, upon *Infant Mortality*. The expositions given of the influence of food, of locality of residence, of social customs and fashions, and of poverty, ignorance, and prejudice upon infant vitality, are as concise as they are truthful and complete.

The next article is a curious and valuable essay by Dr. George Derby upon the *Food of the People of Massachusetts*. It is assumed that experience and observation rather than theoretical considerations should guide us in estimating the value of food. The fact is also noticed, that while a strong man, living in a pure atmosphere, can maintain robust health on a sufficiency of almost any kind of food, yet that to the large numbers living in confined air, to the feebly organized, and to women and children, a choice between different articles of diet may be a matter of supreme importance. Quotations are made from the reports of physicians throughout the State as to the sufficiency, variety, and character of the popular dietary in their districts. These show that to thousands of families, bad cooking, excessive use of pastry and of fried food, poor bread, and sometimes a preponderance of salted meats, are the foes in the household that are accountable for much ill health. Too little variety in diet is thought to be a common fault in both city and country. Men will pine and sicken upon a regimen theoretically perfect if long unvaried. Dr. Derby deprecates in strong terms the enormous consumption of trashy and indigestible pies. He also refers forcibly to the deplorable American habit of bolting the food in the shortest possible time. The excessive use of tea, often made especially harmful by long boiling, is believed to be almost as prevalent and hurtful among the working women of our cities as it is described to be in England by recent writers. The daily consumption of several pints of this potent decoction, to the partial exclusion of nutritious food, is believed to be the frequent cause of serious nervous disturbance and of general ill health.

In a paper called *Analysis of a Correspondence on some of the Causes or Antecedents of Consumption*, Dr. Bowditch pursues the investigation of a subject to which under different aspects he has devoted much attention for many years. Printed questions have elicited replies from all parts of the State and from other States and countries. Taken together they form a considerable body of opinion upon a variety of questions connected with this most formidable of diseases. We are interested to learn that Dr. Bowditch hopes to publish at some future time his views on the prevention of consumption.

Prof. H. B. Hill continues in this volume the researches made by order of the Board into the *Adulterations and Impurities of Food*. Twelve samples of

pickles from different sources were examined, and ten of them found to contain sulphate of copper.

In an article upon *The Homes of the Poor in our Cities*, Dr. F. W. DRAPER describes things as he found them in the poorer quarters of eight cities. In all were specimens of every possible fault and evil in the dwellings of the poor. The gloomy picture is brightened, however, by accounts of the excellent provision made by several large manufacturing corporations in the way of homes for their operatives, in which health, comfort, decency, and self-respect are secured to all. That such pestilent holes as disgrace hundreds of our large cities should be allowed to exist for one day, is a reproach alike to worldly wisdom and to morality. Not only the sense of right, but an enlightened regard both to municipal and to national prosperity require that the poor should be enabled and encouraged to live decently and in consonance with the laws of health.

We are certain that it is for the interest of every city to look closely after the health and comfort of its humblest inhabitants. No less sure is it that the well-being of the nation at large requires and warrants that the cities be held closely to their duty. This is a government by the people, and we cannot afford to allow thousands of voters to experience the degrading influences of filth and squalor. We welcome this paper as one well adapted to awaken the public to a sense of duty. The evils depicted are to be found in all our cities. In regard to prevention and cure, Dr. Draper states that ample, or even excessive, legislation already exists in Massachusetts. There seems, however, to be a lack of practical methods of enforcement, and a want of public interest.

In concluding this brief sketch of the report we cannot refrain from again commending the character of the work. There is scarcely one paper but should interest and instruct any intelligent reader. Taken together the annual volumes form no mean introduction to the study of social science and public hygiene.

B. L. R.

ART. XIX.—*Second Annual Report of the Board of Health of the Health Department, City of New York*, April 11, 1871, to April 10, 1872. 8vo. pp. 408. New York, 1872.

THE general or introductory report of this volume sets forth briefly the aims and labours of the board, and the success or failure of its various endeavours. The condition of the so-called tenement houses is considered by the President to be one of the points most worthy of attention. More than one-half the population of the city inhabit these dwellings. As a witness that the board has not worked in vain, it is found that the mortality in the worst of these has fallen off 15 per cent. during the last four years. In some instances where thorough reconstruction was compelled, the death-rate was reduced 75 per cent. Trades or manufacturing processes injurious to public health have also received constant supervision. One extremely important work has been the underdraining of extensive tracts in the upper part of the island to fit them for occupancy. This one manifestation of foresight has doubtless saved thousands of lives. Reference is made to the extra labour thrown upon the officers by the epidemic of smallpox. So far as power and authority would allow, these gentlemen seem to have discharged their duties admirably.

The same suggestion is made as to the outlets of sewers, that we have noticed

in the Massachusetts report, viz., that these should be carried well out into the tidal currents. At present the accumulations near the mouths of sewers are exposed at low tide. The lamentable waste of fertilizing material under the present system, and the consequent inevitable exhaustion of the most productive soils at last, are forcibly set forth. It is only in the sub-report made by the engineer, however, that we find any attempt to show how this waste can be avoided. The suggestion is, to have immense basins in the rivers at sewer outlets, in which the more solid matters should accumulate. Three million tons is the amount estimated to be deposited in, and "readily removed" from, these receptacles. How these basins are to coexist with shipping at the wharves, and how emptied in a way to save contents, we are not told.

The removal of garbage and ashes seems about as difficult, in practice, in New York as elsewhere. It is recommended to be placed under the immediate supervision of the police. The slaughter-houses are said to be reasonably well managed; but sufficient evil attaches to justify the recommendation of a grand abattoir. At present the offal from the different establishments is conveyed to a large floating arrangement, moored at a wharf all day, and at night towed out into the stream where its load is subjected to the usual processes of fat-rendering. This plan, though a great improvement on former ones, is obviously not faultless.

The over-crowding of the poor, in the tenement houses, is said to be worse than in any other civilized city. Moreover, in spite of all the efforts of the board, the evil is increasing. The board asks for a modification of its powers, so that it shall be able to order and compel the reconstruction of houses radically faulty. Heretofore the only course has been to compel their vacation, which might, or might not, lead to reconstruction. In some districts of the lower end of the island, lofty and substantial warehouses are being vacated, owing to the movement of business in other directions. It is urgently advised that such buildings be at once, and as rapidly as they become empty, transformed into well-arranged tenements, provided with every known facility for preserving health, and for avoiding the causes of pestilence and misery among the thousands who will seek to inhabit them. Even were it possible to provide these teeming multitudes with country homes, and to take the men to and from their city work by cheap and rapid trains, the greater proportion would still cling to the courts and alleys to which they have always been accustomed. What can be done and ought to be done, and what the health authorities strenuously labour for, is to render these immense human hives decent, airy, light, properly drained, and capable of cleanliness. It is certainly more humane, and also more economical in the end, to make the outlay needed to transform these deserted warehouses into model tenements at once, rather than to wait until the terrible mortality, sure to follow their occupancy unchanged and unimproved, shall affright the city and compel their vacation.

As seems to be the case in all our large cities the work of the board is impeded and nullified by want of authority, and by the failure of citizens and courts to enforce the laws. Indifference, unfaithfulness, and corruption, are met at every turn.

Want of power was peculiarly felt in the efforts made to restrict and destroy the epidemic of smallpox. Under all difficulties, however, the officials of the Health Office seem to have worked well and faithfully. The utterly faithless manner in which the street cleaning has been neglected, and the wretched condition of pavements, have been sources of disease fully appreciated by the board though little under their control.

With a view especially to the prevention of a cholera epidemic the tenemen

houses were twice, during the spring and summer of 1871, thoroughly inspected, cleaned, and whitewashed; drains and privies repaired and disinfected, and everything done that was possible to lessen the dangerous unwholesomeness inseparable from bad construction and overcrowding.

The Sanitary Inspector and Superintendent presents a report which introduces brief reports from each one of the local district inspectors. There are nineteen of these, each dealing with matters affecting the sanitary condition of the writer's own district: Written by medical men, all evince interest and intelligence. Several deal at considerable length with sanitary questions which happened to become especially prominent in their districts. Inspector H. R. Stiles, M.D., gives an exceedingly instructive account of some of the large tenement houses in his district. Exact details of the extent and character of the dilapidations, imperfections, and faults found in these, with a statement of the rents received for building and for rooms, are first presented; then follows an account of the changes and improvements made by the owners under the advice and supervision of the inspector, with cost of alterations, and statements of rents subsequently received. The gratifying results have been, not only vast additions to the health and comfort of the tenants, but increased income to the proprietors. Thus we are told that while these gentlemen began sullenly, and only under threat of having their houses closed, they ended by being convinced the change was for their good as well as the tenants', and willing cheerfully to continue the good work in other quarters.

One remark made by superintendent Moreau Morris, M.D., is well worth repeating and remembering. It is not in the dwellings of the poor and ignorant only, that we find the laws of health ignored and broken. In mansions of wealth and luxury, and in counting-rooms dealing with extended commerce, we may often notice extraordinary neglect of the plainest conditions of health. Especially in the matters of overheating our houses, and closely confining the stifling blasts from the furnaces, and in rigorously excluding the sunlight, do our countrymen sin grievously.

A single manifestation of one of the crying evils in our time and country—bad, dishonest, and unskilful work by half-taught and faithless mechanics—is signalized by Dr. Morris as responsible for an immense amount of disease and death. Bad plumbing, is the frequent cause of deadly sewer-gas pervading and poisoning the air of our houses.

Attention is directed to the sanitary necessity of thorough drainage in all wet and springy regions. It is not enough that the surface-water and sewage shall be removed. This may be well done, and yet the soil left saturated with moisture. Deep and substantial culverts, especially where brooks and springs have been filled up, are of the greatest importance.

The report on vital statistics opens with an admission of the discouraging incompleteness of the returns made of births and marriages. Clergymen are required by law, and under penalties, to report every marriage; yet many of them fail to do so. Of the births it is estimated that only two-thirds are registered.

The mortality tables are exceedingly full, viewing the facts under the most varied relations.

A table of great interest exhibits the population, annual mortality, and death-rate, of some seventy American, and over one hundred foreign cities. Some of the death-rates, by their palpably absurd inadequacy, point to imperfect registration. It is probably fair to assume, however, that the percentage is nowhere overstated. Some of these are as follows: New York 28.6 (28.6 deaths to each 1000 inhabitants), Brooklyn 25.9, Philadelphia 22.9 (increased

since to 26), St. Louis 16.9, Chicago 23.3, Boston 23.5, New Orleans 29.2, Richmond 30.4, Vicksburg 41.8, Memphis 46.1, Montreal 36.9. Paris shows for the same year—1871—the great mortality of 54.7; Berlin 38.9; in both of these, the figures are larger than before the war.

The sanitary differences of different parts of the city are well shown by death-rates in each ward.

The term "typho-malarial" is adopted by the compiler as designating a real variety of fever, non-contagious, lacking the pathognomonic traits of typhoid, and dependent on malaria as its cause. He, however, seems also to admit the possibility of an actual coexistence or combination of the two fevers, typhoid and remittent; and would extend the name to include this also.

Cholera infantum as a name for disease, is rejected from these reports from a conviction that it is used with great vagueness; while apparently infant mortality from bowel complaints is principally reported under the name of diarrhœa.

A table showing the deaths "directly or remotely due to intemperance," seems to be curiously and uselessly elaborate. Some one hundred and twenty disease-headings from "accident" to "uremia," are set forth as the final weapons by which intemperance has slain 556 persons, of fourteen specified nationalities and stated age, sex, and civil condition. Here again we find a needless profusion of trivial distinctions and subdivisions. "Bright's disease" alone, figures as the cause (secondary) of 61 deaths from intemperance, while "Bright's disease" with eleven distinct complications, accounts for 36 more. Nearly as many varieties of liver disease are enumerated.

A table showing the occupations of these 556 victims seems to us utterly useless. Even if there were not a large proportion scarcely assignable to any trade or calling, such information would be of no avail without knowledge of the comparative numbers following each avocation.

Scurvy appeared as an endemic in the Lunatic Asylum on Blackwell's Island. It is attributed to "an insufficiency of antiscorbutic food, and a lack of attendance." We hope this experience may prove a warning to the authorities of other cities not to carry their economy too far. Dr. Russel justly remarks in this connection, "An abundance and variety of the very best food is now recognized as an essential element in the treatment of the insane."

Attention is directed to the singular disproportion between the deaths by cancer in the native and the foreign born. Four or five times as many foreign born as natives, in proportion to respective total mortality, die of cancer in New York. The U. S. census, we believe, indicates a discrepancy about half as great in the same direction. The fact that this disease is one of adult life, accounts probably for part of the difference between Americans and foreigners.

The mortality by phthisis varies in different wards from 11.2 to 19 4. The excess of phthisis mortality in the Irish and German citizens—32.5 and 27.9—is also partly dependent on age; but we believe not wholly by any means. As here presented the deaths of the foreign born to the native, by phthisis, are as 6.5 to 2.8.

Curiously minute and elaborate tables are presented, giving a complete history of the fatal accidents connected with the Orange procession riot of July 12th, 1871. Of the fifty lives lost, three-fourths are believed to have been those of persons wholly innocent of any mischievous intentions.

Very full details of suicides are presented, from which we learn that Paris-green is the favourite poison used; and indeed stands fourth in the list of all means of self-destruction, being preceded by shooting, stabbing, and hanging.

The report of the Deputy Register of Records exhibits the forms and blanks

in use. An excellent form for a condensed weekly statement of mortality includes a full record of meteorological conditions, both absolute and, as regards temperature and humidity, compared with means of corresponding days for ten years past.

Special reports of considerable value are presented. One upon smallpox details the system pursued to secure general vaccination, and the method in which cases of the disease were dealt with. Judging by the account given us, the epidemic was as vigorously and effectively fought as it could be with the limited powers of the board and amid the unfavourable circumstances of the case. As compared to the epidemic in Philadelphia, the disease in New York prevailed longer and with greater uniformity. In Philadelphia, the disease may be said to have begun in October and ended in April. In New York it prevailed from the beginning of 1871, causing 208 deaths in the first quarter, 304 in the second, 164 in the third, and 129 in the fourth. The next, or first quarter of 1872, gives 326 deaths. To all appearance the disease had not reached its highest fatality at that time; but the tables extend no further. The percentage of deaths upon cases is given as 35.58. In Philadelphia, the mortality diminished from December, 1871; and from January to February, 1872, it fell 40 per centum. The next month showed only 25 per cent. decrease, but the following—April—saw a reduction of 60 per cent. So far as we can learn, the epidemic in New York at no time became one-quarter—perhaps not one-eighth—as prevalent as in Philadelphia. The percentage of deaths to cases appears to have been slightly less in the latter city.

The N. Y. board agree with the medical profession at large in deeming the late epidemic one of peculiar virulence. They believe that vaccination from a healthy infant is, practically, the best available protection. Lymph from successful revaccinations has been known to prove non-protective, even when apparently active. Disinfection of rooms by sulphur fumes, and clothing by sulphate of zinc and carbolic acid in water, has been efficient and reliable.

A special report by Dr. Stephen Smith on the movements and condition of the tenement house population, deals with the subject in a wise and practical manner. The remedies pointed out for the existing overcrowded and unwholesome residences of the poor, are thus summed up: Improvement and reconstruction of existing tenement houses; building of "model houses;" cheap fares on the railroads; and the conversion of deserted warehouses, as before described. To secure these ends legislation is needed and is asked.

A report upon the recent epidemic of cerebro-spinal meningitis, by Dr. Moreau Morris, is well worth attention. A principal point made is the almost invariable connection of the cases with escaping sewer-gas or with foul, damp cellars. In forty-eight cases the facts of this character are briefly stated. Almost invariably we read of loose connections or broken joints in the sewer-pipes, allowing the gas to escape into the cellar.

A paper by Dr. Stephen Smith upon the sanitary influences of heat, is especially interesting and valuable for the practical suggestions towards relief from the excessive and fatal temperature of the city in July and August. The very great influence of shade trees is well explained and illustrated. In several ways, trees moderate the summer heats, besides purifying the air and neutralizing the poison that produces intermittent. Shade trees, therefore, should be planted and protected all over the city; besides being preserved throughout the State, for their influence on the general climate. The second means proposed for combating the summer heats is an unlimited supply of river water, for universal bathing, in great public baths, and for wetting and washing the entire street surface daily. Steam-pumps with a stand-pipe may be established

on the river-shore to connect with a system of pipes distinct from those for the Croton water. The saving of the latter, together with the use of the river water for power and many other purposes, would fully pay the cost of pumping, and, perhaps, even the interest on the outlay.

The paper just noticed, and several of the other reports, are illustrated by elaborate diagrams and maps. B. L. R.

ART. XX.—*Annals of Cholera, from the Earliest Periods to the Year* 1817. By JOHN MACPHERSON, M.D., Inspector-General of Hospitals H. M. Bengal Army. (Retired.) 8vo. pp. x., 235. London: Ranken & Co., 1872.

THE first chapter of Dr. Macpherson's book is devoted to the consideration of the literature of cholera. This is, as is well known, sufficiently voluminous, and yet comparatively little has been written concerning the early history of the disease—a fact, in view of their opportunities for its study, not creditable, he thinks, to English physicians in India. It is to supply this deficiency that he has published these Annals, which he says he has endeavoured to write in the impartial spirit of an historian. He therefore gives, as far as possible, the accounts of authors in their own words, allowing the reader to draw his own inferences. He, nevertheless, has a theory of his own as to the nature of cholera; and although this is elaborately stated only in an appendix, it is not difficult to see that it has influenced many of his conclusions.

In the first place, he combats the popular belief that cholera is a disease which dates only from the year 1817, by referring to the works of early writers on medicine. From the time of Hippocrates down to the commencement of the sixteenth century, there is scarcely an author who does not describe a disease, characterized by serous evacuation, suppression of urine, loss of fluid to the system, lividity of countenance, collapse, rapid recovery in some cases, protracted recovery with secondary fever in others, and by relapses.

There is, moreover, evidence that the disease was a grave one, and that many of the remedies now prescribed in cholera were employed in its treatment, and it is curious to note that the same difference of opinion existed then as now in regard to the propriety of arresting or favouring the discharges from the stomach and bowels. Among those who recommended the administration of eliminants may be mentioned Aretæus of Cappadocia, Aetius, Rhazes, Avicenna, and Ayurveda of Sucruta.

During the period, from the beginning of the sixteenth century to the year 1817, which the author next studies, epidemics of bowel affections, of considerable magnitude, appear to have been not uncommon, and there is good reason for believing that some of these were cholera. In fact, so wide spread were some of the epidemics that they gave rise, in France, to a popular rhyme,[1] which, while it embodies some sound advice, also shows what were the general impressions of the causes of the disease. It is, of course, impossible, in a brief notice, such as this, to follow Dr. Macpherson in all his investigations, and we will, therefore, content ourselves with saying that, among English physicians, Sydenham and Willis have given good descriptions of the disease,

[1] Tiens tes pattes (feet) en chaud,
Tiens vides tes boyaux (bowels),
Ne voyez pas Marguerite
Du cholera tu seras quitte.

and that the latter distinctly recognized the profound impression which is made upon the nervous system. Both Sydendam and Willis condemn the use of evacuants, although neither of them recommends that the discharges should be abruptly arrested. The former gave diluents in the early stages, but soon had recourse to laudanum, and continued its use longer than has been customary in more modern practice. Willis recommends cordials and opium.

The account which Sir John Pringle gives of the prevalence of cholera, dysentery, and fever, in the low countries, is interesting, especially with reference to Pettenkofer's theory of the origin of the first-named disease. When speaking of intermittent fever, he says: "By looking into their wells, it is easy to determine the healthiness of their villages. These wells being fed by the underground water, and being observed to sink proportionally to the drought in summer, are at once a proof and a measure of the constant exhalation of this concealed water, through the pores of the earth, occasioned by the heat of the sun." Another physician, Dr. Tralles, expressly refers the oppression of the circulation to the blood being drained of its serum, and attributes the disease to the sudden refrigeration of the body during great heat—a theory which, in some form or other, has been more or less held in all ages. We also meet with the expression rice-water evacuations—usually considered the characteristic of Indian cholera in the histories of some of these epidemics. Several epidemics of colic are also described, but it is difficult to believe that any other form of colic than that dependent upon lead-poisoning can be epidemic, and even when arising from this cause, it is not likely that it would extend further than the country in which it originally appeared.

There is also evidence of the existence of cholera in an epidemic form in India during the same period—our knowledge of it in different localities varying, of course, with the degree of intercourse between that country and Europe. The earliest accounts of the disease are furnished by the Portuguese, who speak of its occurrence in 1503, at Goa, as if it were not an unusual circumstance. Perhaps there can be no better evidence that the epidemic of 1817 was not regarded by the natives of the country as a new disease, than the fact that, during its prevalence, they went in numbers to the shrine of Oola-Beebee (Lady of the Flux), who had been worshipped as the goddess of cholera for centuries. Moreover, the existence of a tolerably acute form of the disease, in Arabia, did not escape the observation of Karsten Niebuhr[1], in 1761–63. M. de Gentil and M. Sonnerat, also give admirable descriptions of cholera as it occurred in India. Mr. Jameson, to whom we owe an account of an outbreak at Ganjam in 1781, says that the disease was so violent, and so often proved rapidly fatal, that it was, at first, attributed to poisoning, especially through the drinking water, but afterwards to vicissitudes of weather and to exposure of the troops. In 1782 we find the use of castor oil recommended by Curtis, but he evidently did not rely upon it to any great degree, for his treatment in the main consisted in the use of strong ammonia and stimulants, with some opium.

The year 1817 is one of great interest to the student of cholera; for although Dr. Macpherson has shown very clearly that the disease did not originate then, there is no doubt that it assumed, at that time, a much more aggravated form, and that epidemics have since been more frequent and severe. Another popular error which he also corrects is the belief that the epidemic of 1817 began in the Sunderbunds, or in a small way at Jessore, for in that year there was a fatal case of cholera in Fort William, in the month of March. In May and June the disease was raging epidemically in Kishnaghur and Mymensing.

[1] Voyage dans les Mers de l'Indé, 1779.

In July it was at Sonergong, in the Dacca district, and as high up the river as the large city of Patna, and it did not reach Jessore till August, and not till after the middle of the month. It broke out at Calcutta at much the same date or a few days earlier. When it first appeared at these places, although occurring later in the year than usual, it was considered, by the medical authorities, the ordinary epidemic of the season, presenting, however, symptoms of unaccustomed violence. It appears, however, to have been thought, for the first time, contagious, and it had, undoubtedly, acquired a much increased power of spreading.

In regard to the causes which led to the epidemic of 1817, Dr. Macpherson says, the most reasonable conjecture is, that the disease was intensified by the unusual weather of that year.

"In the lower and western portion of the Gangetic Valley, there was a long protraction of heavy rain (one hundred and twenty inches, or nearly double the usual amount of rain, are reported to have fallen during the year), while in the eastern part of Bengal things wore a different appearance. In that quarter, there was a deficiency of rain, and the rise of the river was four feet short of its usual height. There was, therefore, undoubtedly, the influence of unusual weather at work. We have already said, that it is known to induce attacks of illness in individuals, and also to influence the course of epidemic diseases. What further power over disease it has, no one can pretend to lay down positively. Incapable though it may be of producing a new disease, yet it may possibly be able to intensify an old one, and cholera was an old malady in Bengal, though latterly quiescent."

He shows very conclusively that it could not be attributed either to overcrowding, bad food, famine, or to filth. In reference to overcrowding, he says:—

"But no cause of such a nature existed in Bengal in 1817. We know of no great pilgrimages or assemblages there in that year. Besides, the pilgrims to Juggernath only skirt the delta of the Ganges, and the pilgrimage to Saugor Island, at the mouth of the Hooghly, is comparatively a small one. Cholera did not become epidemic till some months after the season of pilgrimage, and there is no evidence to show that in the early part of the year there was cholera at either of these places."

The methods of treatment adopted by physicians at the beginning of the epidemic do not present much novelty. The old question whether to promote the removal of the morbid secretions by means of emetics, purgatives, diluents (or in modern phrase, eliminants) or not, continued to engage attention, as in the days of Hippocrates.[1] It soon became evident to intelligent practitioners that the administration of diluents only led to waste of time—that nothing could be more dangerous than any delay in supporting the patient, and that by giving aperients and emetics in the commencement, the virulence of the disease was increased. They, therefore, usually became advocates for the early use of stimulants and opium. Were it not that the application of the actual cautery to the feet has passed out of use, and that pepper is no longer placed in the eyes of patients to rouse them from collapse, we should have little reason to congratulate ourselves on the advances made in the therapeutics of the disease.

It is noteworthy, especially in view of the theory of cholera, which Mr. Macnamara advocates, that among the general directions which were given for the avoidance of the disease, people were recommended to have their drinking

[1] In the face of this evidence, the claims to novelty which have been made for the eliminant plan of treatment by castor oil or other purgative, cannot be maintained.

water boiled. Among the exciting causes of the disease are mentioned the use of indigestible articles of food, and sleeping with the abdomen uncovered.

The reader who is interested in the subject will find the nomenclature of cholera very fully discussed in a separate chapter. The author thinks that, on the whole, the most satisfactory derivation of the word cholera is from χολος, the old form of χολη bile, and χολερη is from η χολερη νοσος, the bilious disease, or disease of bile. A curious fact in connection with the nomenclature of the disease is the corruption, by the French, of the Hindoo word *Mordeshee* or *Morshee*, into *mort de chien*, which, according to Père Martin, had taken place as early as 1702.

In an appendix "On the Analogies of Cholera Nostras and Cholera Indica," Dr. Macpherson has endeavoured to prove that these diseases are really identical, and that the only points of real difference between them is one of degree, which he does not regard as sufficient grounds for separating them, especially so long as we continue to regard *scarlatina simplex* and *scarlatina maligna* as the same disease, and are willing to regard the various manifestations of influenza as due to one cause. When speaking of the contagiousness of cholera Indica, he says, that if we admit that epidemic diarrhœa may sometimes be contagious, it is very unlikely that this should not sometimes be true of epidemic cholera nostras also. But in addition to differences as to malignity, contagiousness, and power of spreading, the prevailing belief is, that there is a specific poison present in cholera Indica. Supposing it to be established that this specific poison really exists, for this has not yet been done, then almost identical symptoms are produced in the absence and in the presence of a specific poison, which, unlike the poison of smallpox or that of typhoid fever, does not produce any specific effects.

We have endeavoured, in the preceding notice, to lay before our readers some of the most important results of Dr. Macpherson's labours, and it only remains for us to say, in conclusion, that any one to whom the book itself is accessible, will do well to read it. J. H. H.

ART. XXI.—*Memoria Historica das Epidemias de Febre Amarella e Cholera-Morbo que têm reinado no Brasil.* Pelo Dr. JOSÉ PEREIRA REGO. Do Conselho de S. M. o Imperador, Medico da Imperial Cámara, Presidente da Academia Imperial de Medicina, etc. etc. etc., 8vo. pp. 228. Typographia Nacional. Rio de Janerio, 1873.

Historical Memoir of the Epidemics of Yellow-fever and Cholera, which have occurred in Brazil. By Dr. JOSÉ PEREIRA REGO, President of the Imperial Academy of Medicine, etc. etc., Rio, 1873.

THE consideration of the question of cholera in South America involves the great problem of the spontaneous development of the disease in Paraguay, a doctrine which is held by many medical men in La Plata and Brazil, though it finds there as many opposers as elsewhere.

The eminent official position of the author of the monograph, the title of which is placed at the head of this article; the facilities which he most certainly enjoyed in obtaining access to reliable sources of information; his own personal opposition to the theory of generation *de novo;* and the importance of the question he discusses, certainly justify us in expecting that Dr. Rego's book

will throw new light upon the subject. In the following pages we propose to examine that portion of the work which treats of cholera in Paraguay.

Dr. Rego, discussing the first epidemic of cholera in the army, writes as follows:—

"From the perusal and analysis of all the facts that we have been able to collect, it is difficult, if not impossible, to discover the cause of its origin in the army, especially, since in view of the manner of its appearance, medical men of the staff hold the opinion that the disease was not traced to contagion, but that the unknown *quid* that produced cholera in the army was to be found in the hospitals of Itapirú or its neighborhood. Without feeling ourselves authorized to deny the facts, yet in view of the authenticated characters of the first cases occurring there, we find that it would be the first instance that science has recorded of the spontaneous development of cholera far from the places where it originated, as we are taught by the historical traditions of the epidemic.

"The occurrence of the disease in Pernambuco and its manifestation in Guanzy in 1862, without the importation of new productive elements, are additional proofs of the correctness of this view, which tends to establish an exception to the received doctrines; but even here we think the explanation is easy and admissible without doubt, for if there were not importations of new productive elements there was at least exposure to the element of the first epidemic not yet extinct, either by the exhumation of the bodies of those who died of cholera, many of which might not have been entirely consumed; or by conditions of the soil, or by the accumulation in which they were buried. But still, taking into consideration the facts that occurred on the steamer "Feixeira de Freitas," and the subsequent development of cholera in the army, we are led to suspect that in all probability this was the first importation of the disease into the army, whence it afterwards spread to La Plata, etc. For it is generally known that the steamer "Feixeira de Freitas" left Rio during the latter days of February, with over two hundred soldiers for the seat of war, and that two days after leaving port the troops were attacked with cholera, and also, that the steamer, following its route, on entering the Parana River (Argentine Republic), and when opposite to Goya, on the 3d of March, received orders to return immediately to Santa Catherine (Brazil), where the patients were sent to a Lazaretto, etc."

Now, Goya is a place in the Argentine Republic, situated two hundred miles distant from the locality where the armies were encamped, and before the steamer had an opportunity of communicating with them it received orders to return to Brazil, which it did without touching shore. We cannot understand how the disease could have been carried to a place by a steamer that did not come within two hundred miles of the infected locality, and which was immediately ordered back to Brazil as a safeguard to the armies. This Dr. Rego does not even attempt to explain, but remarks:—

"Let this be as it may, and dropping the discussion of such important questions, the solution of which depends upon an exact and careful appreciation of all the circumstances connected with it, we will say, that the unfortunate outbreak of cholera in the army awakened the solicitude of the general," etc. etc., and the author then goes on to describe measures for its relief.

This is all that we find in Dr. R.'s volume to account for the appearance of the disease in the army, but Dr. R. himself furnishes us with another and no less interesting case of the development of the disease in which the cause could not be traced. We refer to the expedition of Mattogrosso, a province of Brazil, whose only communication with the world was through the Paraguay River, and which in consequence of the war was completely isolated. This province raised a small army within its boundaries, which was shut up in its own territory, and suffered dreadfully from the privations consequent upon

disease and war. Among these troops cholera appeared, and after describing the epidemic, Dr. Rego speaks thus :—

"The appearance of this epidemic in an expedition which had no contact whatever with men, or materials coming from places attacked with cholera, awakens interest in the solution of these two important questions: 1st, Was it a true epidemic of cholera or of some other disease simulating it? 2d, Did it develop by transmission or spontaneously? The first question we think is solved by the existence of the symptoms noted, which leave no doubt in the mind as to the existence of cholera; in regard to the second question, it is unsafe to form a judgment, but we may hope for a solution with more positive and reliable information. Still, preferring to leave this solution to the eye-witnessess of the epidemic, we may venture as an opinion, that seems to us plausible, that the disease was carried to Mattogrosso through the *infected atmosphere of Paraguay*," etc. etc.

At last we have Dr. Rego expressing an opinion in conformity with the facts, and to convince him of what he merely supposes possible, we will examine his description of the invasion of Rio Janeiro, from which place, according to him, the disease is supposed to have been carried to the army.

Concerning the outbreak of cholera, in the second invasion of Rio Janeiro (the first having taken place in 1859), Dr. R. says :—

"The first and well characterized case occurred on board the steamer 'Santa Cruz,' which arrived at this port on the 1st of January, from Rio Grande, where, according to the papers, the disease was then raging."

Now upon turning to page 203 we find the following description of the invasion of cholera in Rio Grande.

"The first case appeared in the city, on the 22d of January, the disease having been imported from the United States, though at that time the city was suffering from bilious and bloody diarrhœa which did not present the aspect of cholera or cholerina."

These statements are so contradictory, that we must ask Dr. R. how is it possible that if the disease appeared in Rio Grande on the 22d of January, the steamer "Santa Cruz" could have brought it to Rio Janeiro, where it arrived the 1st of the same month?

The "Santa Cruz" was coming from Paraguay and called at Rio Grande three or four days before reaching Rio, so the steamer was at least twenty-five days in advance of the first importation to Rio Grande, how then could the cases occurring on board be traced to its stoppage at Rio Grande?

In the case of the "Feixeira de Freitas" we have a steamer carrying the disease to a port that it never reached, now in the case of the "Santa Cruz" we have another steamer carrying cholera to Rio from a port where it did not exist at the time of its departure.

However curious all this may appear, we will next see another inexplicable statement that Dr. Rego puts forth in his anxiety to import cholera to Rio from any place whatever but the proper one.

"The discovery of this case [on board the "Santa Cruz"] and of others that followed among the passengers and persons with whom the latter communicated, led many to believe that this steamer had conveyed the disease, *but the existence of some sporadic cases in* 1866, *and the report of twenty deaths from cholerina in* 1865, *after the arrival of vessels from Marseilles, which were not subjected to quarantine, as the "Berthe" and "Franciscopolis"—the captain of this latter having died of cholera in September—and from other facts connected with that same period that we have related in our report to the Secretary of State in* 1868, *we are led to doubt such origin, and to consider the disease imported rather from Marseilles or other foreign ports.*"

The italics which are our own form the best comment we can offer on this

proposition, which involves no less than the importation of cholera poison to *the tropics*, its remaining dormant for two years, and then developing itself by mere coincidence upon the arrival of a vessel from Paraguay with cholera on board!

The foregoing is all that we have found in Dr. Rego's book in connection with the epidemics of Paraguay, and how much he has proved, and how much remains yet to be proved, concerning the origin of the epidemic the reader will readily see for himself.

The infection of Rio Janeiro through the "Santa Cruz" coming from Paraguay, is the most important fact drawn from Dr. Rego's statements, and if from the beginning these facts had been impartially analyzed by him, he would have rendered a great service by contributing to prove the truth of what he has not been able with all the facts at his command to controvert, namely, the theory of the spontaneous development of cholera in Paraguay. E. M. E.

ART. XXII.—*On Nervous or Sick-Headache: its Varieties and Treatment.* Two Lectures delivered at Addenbrooke's Hospital, Cambridge. By P. W. LATHAM, M.D., F.R.C.P.; Physician to the Hospital, etc. 12mo. pp. 71. Cambridge: Deighton, Bell & Co., 1873.

IN the two lectures which are contained in this little volume Dr. Latham endeavours to demonstrate that the phenomena of the condition known as sick-headache or bilious headache may be produced by uncontrolled or disturbed action of the sympathetic nervous system. He was unaware when the first lecture was written that similar views had been held and enunciated by Du Bois Reymond, Möllendorff, and Wilks, and he, therefore, in the second lecture refers very fully to the respective views of these physicians. His theory may be briefly stated in his own language as follows:—

"If by fatigue, anxiety, or other depressing cause, the general tone of the body be lowered, and with it the inhibitory power of the cerebro-spinal over the sympathetic nervous system impaired, then that uncontrolled action or excitement of one or more portions of the latter takes place, causing contraction of the bloodvessels under the influence of the affected portions; that this excitement is followed by exhaustion or paralysis of the sympathetic, which is associated with dilatation of the vessel, and, if the cervical portion of the sympathetic be affected, with headache."

During the stage of excitement, or that in which the bloodvessels of the brain are contracted, we have, the author says, some marked premonitory symptoms, such as disturbances of vision, generally confined to one eye and accompained by tingling in the extremities of the same side. If the attack is a slight one, scarcely any headache will succeed these phenomena, but in severe cases, on the other hand, the stage of passive dilatation follows so closely upon that of contraction that the premonitory symptoms may be entirely wanting. This disturbance of vision, which Dr. Latham seems to have met with more frequently than other observers, is very well described by Sir John Herschel, who gives the following account of it, in his *Familiar Lectures on Scientific Subjects*, as it occurred in his own person.

"I was sitting one morning very quietly at my breakfast-table, doing nothing and thinking of nothing, when I was startled by a singular shadowy appearance at the outside corner of the field of vision of the left eye. It gradually advanced into the field of view, and then appeared to be a pattern in straight-lined angular forms, very much in general aspect like the drawing of a fortifi-

cation, with salient and re-entering angles, bastions, and ravelins, with some suspicion of faint lines of colour between the dark lines."

In some other cases a most gorgeous colouring of these *bastions* has been described.

The author takes some pains to show that precisely similar phenomena are occasionally developed by remedies which are known to produce contraction of the minute arteries. Thus the experiments of Dr. Brunton prove that under the action of digitalis two kinds of derangement of sight were noticed, when the drug was administered in large doses. 1st. "A general mistiness of objects, such as is seen before fainting, and 2d, a large bright spot advancing before me, which sometimes resembled a ring showing prismatic colour faintly." The same appearances are described even more fully by Purkinje. Du Bois Reymond is the only author who has found during the stage of headache any contraction, or, in his own words, a tetanic condition of the muscular fibres of the arteries of the affected side of the head, or a tetanus of the cervical portion of the sympathetic of that side. To all other observers the carotid and temporal arteries of the painful side have appeared soft and relaxed.

In support of his theory that the headache depends upon the direct pressure of the enlarged vessels upon the brain, and that this enlargment is subsequent to a contraction, the author calls attention to the fact that while the premonitory symptoms of irritation are on one side of the body, the headache is on the other, which he thinks would not occur if the true pathology of the condition was neuralgia. Another fact, also sustaining his opinion, is that the headache is at once diminished when the carotid of the painful side is compressed.

The author devotes a few pages to the discussion of two of the theories which are advanced as to the nature of this disorder; the one that it is a neuralgia; the other that it depends upon gastric or hepatic derangement; neither of which he believes so fully explains all the phenomena attendant upon it as his own. In regard to treatment, he says this should vary according to the stage of the disease. When the patient is suffering from disturbed sensation, such means should be adopted as will increase the flow of blood to the head, and this can be best accomplished by posture and stimulants. The patient should lie down with his head as low as possible on the side opposite to that on which the glimmering has appeared. A glass of sherry or an appropriate dose of some one of the diffusible stimuli should be administered. During the stage of headache, if this be severe, absolute rest and quiet are enjoined. Where the exciting cause of the attack appears to be an error of diet, an emetic or purgative may relieve the symptoms. The author has also used, with advantage, hydrocyanic acid, chloroform, bromide of potassium, aromatic spirit of ammonia, and cold tea. The remedies which he recommends to be given during the intervals of the attacks are cod-liver oil, the bitter and ferruginous tonics, and strychnia. He has also used guarana, but has found it to be useful only when administered early in those cases in which the premonitory stage lasts for some little time. Where, on the other hand, the headache is developed suddenly, it is he thinks far less efficacious than many other medicines.

We have thus presented our readers as briefly as possible with the author's views in regard to the pathology and treatment of sick-headache, and it only remains for us to say that he sustains his theory with what seem to be fair and sound arguments. The book is illustrated with three plates, two coloured, taken from Dr. Airy's paper, in the *Philosophical Transactions*, "on a distinct form of Transient Hemiopsia," and the third showing the appearances seen by a person who had taken a large dose of digitalis. J. H. H.

ART. XXIII.—*On a Hæmatozoon inhabiting Human Blood in its relation to Chyluria and other Diseases.* By T. R. LEWIS, M.B., Ass. Surgeon H. M. British Forces. 8vo. pp. 50. Calcutta, 1872.

IT has long been known that certain worms, belonging to the Filaridæ, exist in the blood of dogs and other of the lower animals, though as far as we know no one has determined whence they come or whither they go, their origin or their destiny.

A disease which has been shrouded in mystery as to its cause and nature, although not infrequently recorded, is the so-called "chylous urine."

In March, 1870, Dr. Lewis discovered, whilst examining some of this "chylous urine," a hæmatoid worm in it, but carried his researches no further.

In July, 1872, whilst examining the blood of a patient suffering from diarrhœa, at the Medical College Hospital, Calcutta, he discovered in it worms of precisely the same character. To these worms, which were described in *The Lancet*, the name of Filaria Sanguinis Hominis has been given. The chief object of the present pamphlet is to show the connection of this worm with the disease known as chylous urine. The doctor has examined such urine associated with more or less marked hæmaturia in between 15 and 20 patients, and has found them in all cases in the excretion; in many if in not all the patients he has also detected them in the blood.

The details of several cases of this curious affection are given, but as it has never, at least that we know of, occurred in this country, it is sufficient here to refer the reader to the pamphlet itself, a memoir of 50 pages, illustrated with several wood-cuts of the hæmatozoon; the average diameter of this species of Filaria is that of a red corpuscle and its average length 46 times greater; *i. e.*, it is $\frac{1}{3500}$ of an inch one way by $\frac{1}{78}$ the other.

In regard to the number of these creatures that a man is capable of giving nourishment to, Dr. Lewis, in regard to one patient, arrived, by an apparently fair calculation, at the conclusion that he was foster-mother to a progeny of 140,000! In regard to the length of time that they may live, it was found in another case that they continued to exist for two years and a half without showing any tendency to develop beyond the usual stage, so long as they remained in the circulation. Their ultimate transformation was in nowise made out. In some instances they seemed to exist in large numbers in the blood without giving rise to any symptoms, the patients believing themselves to be in good health and showing no indications of disease.

H. C. W., JR.

ART. XXIV.—*An Introduction to the Study of Clinical Medicine; being a Guide to the Investigation of Disease. For the Use of Students.* By OCTAVIUS STURGES, M.D., Cantab; F.R.C.P., formerly Registrar of Medical Cases at St. George's Hospital. 12mo. pp. 127. Philadelphia: Henry C. Lea, 1873.

THE design of this little book is to aid those pupils, and, we think the author might have very properly added, recent graduates, who having been taught the principles of medicine and surgery by means of formal lectures, find themselves embarrassed, when called upon to investigate disease at the bedside.

In this country, especially, where didactic teaching, notwithstanding the improvements lately made in the courses of some of the more advanced of our medical colleges, largely predominates over clinical, and where the student is so rarely brought in actual contact with the patient, there are many who need just the kind of assistance at the beginning of their professional career which this book proposes to give. Dr. Sturges has not attempted to present to the profession a complete work on diagnosis similar to that of Dr. Da Costa, his object being simply to point out to students a method of interrogating patients, and has therefore arranged a series of tables which are suggestive of the questions which it is proper to ask. He does not attempt to specify what each symptom may denote, but, on the other hand, endeavours so to train the student that no symptom may escape his notice. In other words, the book is intended to take the place of a clinical teacher, to impress the value of signs which students are too apt to neglect, and to provide cautions against common errors and hasty conclusions. As it is intended to supplement the teaching of the lecture-room, the student is credited with knowing what he may reasonably be supposed to have learned there or from text-books. We therefore do not find the author rehearsing the elementary facts of practical medicine, such as the topography of the viscera or their morbid anatomy, or the tests employed in examining the secretions.

We think the author has done his work well, and have no doubt the book will be a useful guide to the large class for which it was written. In a few instances indeed, especially when discussing the physical signs of disease, he pushes his desire to secure simplicity to an unwarranted extent. For example, after saying in a foot-note that a multiplicity of names leads to confusion, he adds "the expressions 'wooden' and 'amphoric' and 'cracked-pot' and 'metallic' and the like, apt as some of them are, must always remain the exclusive property of those who recognize the resemblances which these words imply." Unquestionably nothing is to be gained by needlessly increasing the number of terms, but the physician who cannot distinguish the various sounds just mentioned, and to whom they convey no idea of the condition of the lungs, is hardly fitted, in our opinion, to be entrusted with the treatment of thoracic diseases.

H. H.

ART. XXV.—*The Cerebral Convolutions of Man, etc.* By ALEXANDER ECKER, Prof. of Anatomy and Comparative Anatomy, in the University of Freiburg, Baden. Translated by Robt. T. Edes, M. D. 8vo. pp. 87. New York: D. Appleton & Co., 1873.

WE are glad to see Ecker's well-known monograph in English dress. It is doubtless the most available work on the cerebral convolutions the physician possesses, and is worthy of the honour given it by Dr. Edes, in writing so good a translation.

The object of the work, we are informed by the author, is to place in the hands of practitioners materials which will make it possible for them to find their way easily in the apparent chaos of convolutions. The pages are illustrated by diagrammatic outlines elaborately indexed, which answer to the descriptions of the convolutions and sulci in the text.

The book is essentially one for reference—not only can the reader easily turn to any particular heading, but can at a glance acquaint himself with its synonomy—a no insignificant matter in studying a subject, which even yet is

without a fixed nomenclature. The single temper-provoking feature is the disposition of the figures. Why figure 4 should be placed on page 49, when it is so badly needed on page 21, we cannot understand.

The author has so explicitly stated the scope and object of the book—and that anatomists are awaiting in return clinical material, from which a more exact knowledge of the functions of the cerebral surface may arise, that it would be manifestly unfair to complain of the omissions, which will doubtless be observed by many readers. We are of the opinion that a closer relationship with the results of clinical study, even in its present imperfect condition, would have been a very desirable addition. May we entertain the hope that, in the event of a second edition being called for, this want may be supplied. H. A.

ART. XXVI.—*Die Ohrenheilkunde der letzten 50 Jahre.* Von Dr. W. KRAMER, Geheimer Sanitätsrath. Zur Erinnerung au seine medizinisch-chirurgische Doktor Promotion, im Jahre 1823. 8vo. pp. 77. Berlin, 1873.

The Aural Surgery of the last fifty years. By Dr. W. KRAMER. Commemorative of his promotion to the Doctorate of Medicine and Surgery in 1823. Berlin, 1873.

ANY work which professed to contain the experience derived from the pursuit of an important branch of medicine or surgery for two generations, would claim our attention, but our interest is heightened when an authority so distinguished as Dr. Kramer lays before the profession the book the title of which stands at the head of this notice. And yet frankness demands the confession of our disappointment after its perusal.

That portion of the pamphlet which is devoted to a review of the past fifty years in aural surgery may be considered as an exhortation to establish a more thorough pathological anatomy of the ear, the importance of which no one doubts; but this *grain* of good advice is lost in the *chaff* of personal vituperation of all the prominent aurists of Germany, England, and America.

An otological career of fifty years, even as brilliant as that of the celebrated Kramer, will not warrant the utter rejection of the scientific investigations of Helmholtz, v. Troeltsch, Schwartze, Politzer, Voltolini, Gruber, Weber, Moos, Knapp, and Wreden, nor of the "host of other living aurists."

It is with much greater satisfaction we turn to the Appendix of this little volume, where the author has presented a series of cases illustrating the cause, treatment, and cure of many forms of deafness and tinnitus aurium. The chief cause of tinnitus in the cases under consideration was, according to the author, submucous exudation in the Eustachian tubes. The deafness in each case appeared to depend on the same cause. The treatment consists in gentle dilatation of the Eustachian tube by means of catgut bougies, $\frac{1}{4}$ mm. in diameter.

The bougie is to be inserted as often as twice or three times weekly, in those cases where speedy relief has been followed by a quick relapse. In other cases the insertion of a bougie once a week has been sufficient to allay the tinnitus and improve the hearing. In both instances the entire treatment has extended over a period of one to four months. In addition to the insertion of bougies a few drops of olive oil, or a solution of sulphate of atropia in distilled water, (0.12 to 15.0) are to be introduced into the Eustachian tube, either by anointing the bougie or by inflation.

Usually relief of the tinnitus is accompanied by improvement in hearing, in fact, the former rarely occurs without the latter, although the author calls our attention to the fact, that in five of the thirteen cases recited, the tinnitus attendant upon submucous exudation in the Eustachian tubes not unfrequently entirely ceases, without a corresponding relief in the hardness of hearing. Therefore, as the author says, the entire independence of both forms of disease is irrefutably shown, although each depends upon the same fundamental affection, and that is, exclusively, submucous exudation in the Eustachian tubes.

C. H. B.

ART. XXVII.—*Fractures of the Elbow-joint.* An Essay to which was awarded the second prize of the Boylston Medical Society, for 1873. By WALTER ELA. 8vo. pp. 57. Cambridge: Welch, Bigelow & Co., 1873.

THIS is a very well written essay, and one which shows that the author (who we understand is a second year's student in the Harvard Medical School) possesses good judgment in using, as well as industry in collecting, his materials—two qualities which unfortunately do not always go together. The most interesting part of the essay is, perhaps, that devoted to the subject of fracture of the coronoid process of the ulna; eleven cases are mentioned in which it was believed by the respective observers that this rare form of injury had occurred, but in which the diagnosis was not verified by dissection; while to the list of four specimens referred to by Prof. Hamilton three more are added, one now first described by the author himself, one referred to in Holmes's System of Surgery, and one described and figured by Bryant.

The only thing which seems to us objectionable in this essay, is the author's recommendation that in cases of injury of the elbow, anæsthesia should invariably be employed as an aid to diagnosis. This we consider quite unnecessary, and therefore undesirable.

The author's case of fractured coronoid process (complicated with an impacted fracture of the neck of the radius) is given as an appendix, and the appearances of the specimen are shown by means of a well-executed "albertype."

J. A., JR.

ART. XXVIII.—*Clinical Lectures on Various Important Diseases. Being a Collection of the Clinical Lectures Delivered in the Medical Wards of Mercy Hospital, Chicago.* By NATHAN S. DAVIS, A.M., M.D., Professor of Principles and Practice of Medicine and Clinical Medicine in Chicago Medical College. Edited by Frank H. Davis, M.D. 12mo., pp. 263. Chicago: J. J. Spalding & Co., 1873.

THE favour with which these lectures were received upon their original appearance in the *Chicago Medical Examiner*, and the frequent application for numbers of the journal that could not be supplied, Professor Davis's son states has induced him to collect and issue them in the present form. It is, we think, to be regretted that before doing so he did not subject these lectures to a more critical examination; for although when delivered at the bedside their deficiencies may have escaped detection by the class in attendance upon the course, and they are not out of place in the columns of a medical periodical,

they are not sufficiently full to justify their publication in a more permanent form. There have been so many admirable clinical lectures published recently that these seem by comparison to be rather meagre, to be in fact mere reports of cases filled in with outline sketches of disease.

Professor Davis, while manifesting some acquaintance with the works of contemporary authors, does not seem to have accepted fully the recent advances made in therapeutics. Although cautioning his students against the excessive use of drugs, he is not himself by any means free from the reproach of occasionally giving them too liberally in cases where a knowledge of the history of the disease would seem to indicate that the patient's best chance of recovery depended upon the adoption of a non-perturbating course of treatment. The editor seems to deprecate criticism when he says that "the fact that the lectures here collected were not given in one consecutive course and reported by one amanuensis, but were delivered as parts of several annual courses in the hospital wards, will explain any want of uniformity that may be observed in the manner of writing the prescriptions or in the naming of medicines." Inasmuch as the manner of writing the prescriptions seems to have attracted the editor's attention, it is strange that he has not taken sufficient care to prevent the mingling of two languages in the same formula.

There are a few typographical errors and occasionally a mistake in construction which the editor would have done well to correct, but in other respects the way in which the book has been issued reflects credit upon the publishers.

J. H. H.

ART. XXIX.—*Fever and Cholera from a New Point of View.* By ALEXANDER SMITH, M.D. Edin., Staff Surgeon-Major; Statistical Officer to the Inspector-General of Hospitals, British Forces in India. (For private circulation.) 12mo., pp. 301. Calcutta: Wm. Smith, 1873.

IN a work which we noticed in the last number of this Journal, Mr. R. T. Lyons made an attempt to prove that the disease generally known as relapsing fever is only a form of malarial disease, modified by circumstances. Dr. Smith, the writer of the book, the title of which heads this notice, like the author to whom we have just alluded, has been for many years attached in a medical capacity to the British forces in India, and has become imbued with the same opinions. He, however, goes further than Mr. Lyons, for while the latter is unable to see any essential difference between the diseases named, the former comprehends all the non-contagious fevers in one class, which he stretches so far as to include cholera. In fact, his object in writing appears to have been to demonstrate "that cholera is simply the highest expression of form which this description of disease attains." In his pathology all these diseases originate in a morbid impression made upon the sympathetic nervous system, which gives rise to paralysis of the vaso-motor nerves, and he therefore regards the difference between cholera and simple continued fever as one only of degree; the severity of the former being due to the greater violence with which the exciting cause acts.

We cannot say that we have found the arguments by which the author endeavours to sustain his views very convincing, and we shall not attempt to make an analysis of them, especially since in doing so we should be obliged to repeat much that was said in our notice of Mr. Lyons's work. We can scarcely

be wrong in supposing that Dr. Smith and Mr. Lyons are very fair representatives of a large class, and that the views which they hold are therefore more popular in India than elsewhere. While willing to concede to them, and to other army surgeons in the British possessions in the East, the advantage derived from the opportunity which their position gives them, for comparing the phenomena of disease in different countries, we do not think they will be able to convince intelligent physicians of the complete identity of enteric fever with remittent fever, and of both these with cholera.

Entertaining the opinions that he does, it is not surprising that Dr. Smith recommends the exhibition of quinia in cholera, which should be given hypodermically whenever the stomach is too irritable to retain it. J. H. H.

ART. XXX.—*As Formações e Transformações dos Animaes Estudo sobre o Desenvolvimento normal, teratologico, e pathologico, Fundado sobre a Embryogenia comparada, a Physiologia, a Anatomia Pathologica, a Histogenia, e a Paleontologia.* Por JOSÉ JOAQUIN da SILVA AMADO, Premiado pela escola medico-cirurgica de Lisboa em 1860, '61, '63, e '64; Preparador e Conservador do Museu d'Anatomia da mesma escola; ex-cirurgiao do banco do hospital de S. José. *Primeira Parte: Desenvolvimento normal dos animaes da fauna actual. Com duas estampas.* Lisboa: Lallemant Frères, 1872. 8vo. pp. 240.

The Formations and Transformations of Animals; a Study of their Normal, Teratological, and Pathological Development, based on comparative Embryology, Physiology, Pathological Anatomy, Histology, and Paleontology. By JOSÉ JOAQUIN da SILVA AMADO, Rewarded by the Medico-Chirurgical School of Lisbon in 1860, '61, '63, and '64; Preparer and Curator of the Anatomical Museum of that School, etc. etc. *First Part: Normal Development of Animals of the existing Fauna, with two plates.* 8vo. pp. 240. Lisbon, 1872.

THIS volume is a well-written compilation of what has been published on animal development in German, French, English, and other languages. The author seems to have sought information from all authorities and produced a learned work. The bibliography of this volume occupies more than thirteen of the two hundred and forty pages contained in it. W. S. W. R.

ART. XXXI.—*Clinical Reports from Private Practice.* By JOHN HERBERT CLAIBORNE, A.M., M.D., one of the Vice-Presidents of the Medical Society of Virginia, etc. 8vo., pp. 424. Petersburg, Va. Jos. Van Holt Nash, 1873.

THE patient of a physician whose *clientèle* lies among the better classes of the community, presents peculiarities of constitution and temperaments not often encountered in the occupant of a hospital bed, which must, therefore, be met by some modification of the treatment adapted for the latter. We are not, however, prepared to admit that there are any set of people, no matter what their antecedents or present condition may be, in whom it is justifiable to

push depletion to the extent Dr. Claiborne recommends it. Among the cases recorded in his book, is one of a woman in puerperal convulsions, from whom he took by venesection one hundred and twelve ounces of blood in forty-eight hours, to which must be added the amount removed by leeches and cups, and that lost from the uterus during parturition, which he estimates at twenty-eight ounces. Well may he explain—

"This practice seems to border on the heroic!" And yet he adds: "Nineteen years have elapsed since this case was placed on record; time may palliate the offence with some. But I do not offer it as an apology—nor do I put up any defence for the treatment. If success were the test of merit always, I could point to the recovery of my patient as the proof of the correctness of the practice. But as this is not invariably so, I wish to write that now, to-day, claiming to live in the full light that has flooded physic under the new régime, and after the experience of so many years, I see nothing which would make me abate one jot of confidence which I placed in the correctness of the treatment then."

The above extract conveys, we think, not an unfair idea of the author's style, as well as of his practice. The reader will, therefore, not be surprised to hear that free bleeding is recommended in all the acute inflammations, and that this is notably true in the case of pneumonia. Although he seems to be aware that success has attended the practice of Bennett and others, who have treated the disease by restoratives and the milder antiphlogistic remedies, he sees no reason why we should abandon the use of the lancet and of mercury, which he therefore uses in all forms of pneumonia, excepting in that form which depends upon malarial poisoning and in which he recommends anteperiodic doses of quinia. The notes of six cases of the disease are given, in one of which death occurred, but whether this fairly represents the results of his practice we are left in doubt.

A physician, whose opportunities for observing disease have been so extensive as Dr. Claiborne's appear to have been, must of necessity, in the course of his practice, meet with cases of interest, and reports of such cases will be found scattered throughout the volume, but they are so loosely strung together, and in many instances so meagre in details, that we fear the book will have very little value for the student; especially since the author's pathology as well as his therapeutics is a little antiquated. Among the minor defects of the book may be mentioned numerous errors in the spelling of proper names and occasional mistakes in the writing of prescriptions, which a little care in the reading of the proofs would have prevented.

It is pleasant to be able to say, in concluding this notice, that the manner in which the book has been issued from the press, reflects the greatest credit upon the printer and publisher. J. H. H.

ART. XXXII.—*Chemistry: General, Medical, and Pharmaceutical, including the Chemistry of the United States Pharmacopœia.* By JOHN ATTFIELD, Ph. D., F.C.S. Fifth edition, revised from the fourth (English) edition by the Author. 8vo. pp. 606. Philadelphia: Henry C. Lea, 1873.

THE former edition of this work having met with the approval of those for whom it was especially intended, the author has been induced to undertake a full revision and introduce all the new matter rendered necessary by the last

revision of the United States Pharmacopœia. The increase in the size of the volume of over fifty pages is made up by new matter and extensive additions to the index. The chapters on the general principles of Chemical Philosophy have been remodelled, and in every part there are evidences of addition and alteration which, though in themselves slight, add to the already comprehensive character of the work. Of these the most extensive are the new processes for the estimation of the alkaloids in the cinchona barks. We would again commend it to the students of medicine and of pharmacy as a useful guide in their practical studies. R. B.

ART. XXXIII.—*The Diseases of the Prostate, their Pathology and Treatment; comprising the Jacksonian Prize Essay for the year* 1860. By Sir HENRY THOMPSON, F.R.C.S., etc. Fourth edition. 8vo. pp. xxiv., 355. Philadelphia: Henry C. Lea, 1873.

IT is but a little more than five years since we were called upon to note the appearance of the *third* edition of this excellent work, and, as might be supposed, comparatively few additions have been found necessary in the present issue. Indeed the book, though in larger type, contains nine pages less than in its previous shape, and while a few paragraphs have been introduced, many more have been omitted. The changes now made are such as are justified by the author's wider experience in the treatment of prostatic affections, and consist chiefly in the substitution of modes of practice which he has himself found useful, for such as were previously recommended on the authority of others.

Of these changes the more important are the following: Local treatment is no longer recommended in cases of chronic prostatitis; an early incision is advised in case of a prostatic abscess pointing in the rectum or in the perineum; and the *sonde coudée*, or "elbowed catheter" (flexible), is mentioned as a valuable instrument in cases of prostatic enlargement. The author speaks less favourably than before of the use of the decoction of senega and of benzoic acid in the treatment of chronic cystitis; and the hot bath is reduced to a place of secondary importance in the management of urinary retention from enlarged prostate, while the catheter is declared to be "in almost all cases . . . the first and only remedy to be employed." For cases in which catheterization cannot be accomplished, the operation of perforating the prostate (which, in 1868, was given the first place, and for performing which the author recommended an instrument of his own devising) is now characterized as a "rough proceeding," which "must be considered as a matter of history." Brander's operation (puncturing the bladder through the symphysis pubis), which was formerly well spoken of, is now condemned; as is Mercier's procedure of incising the so-called "bar at the neck of the bladder." The directions for treating cases of vesical calculus, when complicated with enlarged prostate, are modified in accordance with the author's latest views, as promulgated in his *Clinical Lectures* and in his *Practical Lithotomy and Lithotrity*.

Altogether the new edition of Sir Henry Thompson's work will fully maintain its reputation, and it is still, as it has been repeatedly called in these pages, "by far the best . . . in any language on the important subjects of which it treats." J. A., JR.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Physical Nature of the Coagulation of the Blood.*—Dr. Alfred Hutchison Smee, after briefly reviewing (*Journ. Anat. and Phys.*, June, 1873) the various theories which have been held at different times in regard to the vexed question as to the cause of the coagulation of blood fibrine, gives the views which have been enforced upon his mind by direct experiment, and also by the behaviour of colloidal substances analogous to fibrine.

He summarizes his conclusions as follows: 1st. That the coagulation of fibrine is a physical act, and cannot be considered to be in any way identified with a vital property such as the contraction of muscular fibre. 2d. The coagulation of fibrine depends upon and is regulated by the same laws which cause all soluble colloid substances, whether organic or inorganic, to become pectorous. 3d. That the soluble or fluid form of fibrine ought to be regarded as its allotropic form; and, as in the case of its colloidal analogue, silicic acid, its presence in the blood in the fluid condition depends upon the physical conditions under which fibrine is found in the living body.

2. *Source of Nerve Force.*—Mr. A. H. Garrod presents (*Journ. Anat. and Phys.*, June, 1873) a theory of the mechanism of nerve force, which he thus summarizes:—

The afferent nerves are the conductors to the nerve centres of the electric current which is generated by the contact of their peripheral ends with the tissues of the cooled skin, which they supply. The brain is the largest of the centres towards which the nerve current is directed, the other ganglia forming the smaller. Through these centres the currents, as through an elaborate commutator, are split up or concentrated in a manner not understood as yet, to be directed along the efferent nerves, which are always so situated as to be beyony the reach of external cooling influences. Where an organ acts in any way automatically, it generally has centres of its own, of a size varying in degree according to its automaticity, and these minor centres are only to a certain extent subject to the influence of the brain.

As in the working of the electric telegraph, no return or second special conductor is required to carry back the current to the point from which it started; for where an efferent nerve terminates in a muscle, it loses its insulating covering, and so is put into indirect communication with the peripheral sentient nerves through the intervention of the mass of body tissue generally, which, though its resistance is much greater, offers an incomparably larger mass to be traversed by the current.

3. *Physiology of the Secretion of Bile.*—A very extensive series of investigations upon the physiology of the secretion of bile has recently been conducted by Dr. RÖHRIG, of Kreuznach, in the Pathological Institute at Vienna. Our knowledge of this subject has been hitherto very limited, and probably inaccurate, and had reference rather to the functions of bile, and especially to its digestive properties, than to its secretion and the influence of the blood and nervous system upon it. Whatever may be the use of the bile in the alimentary tract, practical therapeutists are generally agreed that the liver can be "unloaded," and the amount of bile secreted artificially increased, and that there are certain drugs which so far possess this power as to deserve the name of cholagogues. Röhrig's investigations were made solely upon the discharge of bile—in respect of the amount of the secretion in narcotized animals; the effect upon it of alterations in the vascular supply within the liver; irritation of the different parts of the alimentary tract; the presence of fluid in the intestines; the administration of certain drugs, especially purgatives; as well as the influence of various conditions of the nervous system. The results obtained by Röhrig, after experiments upon hundreds of animals, are detailed in Stricker's *Jahrbuch*, 1873, part ii. We will here notice the most important of them.

The mode of experimenting was simple:—A dog or rabbit was narcotized with curare, and an incision made in the abdominal wall, from the ensiform cartilage to near the umbilicus; the under surface of the liver was then brought to the opening by the hand, and a glass tube with a pointed vertical arm tied into the bile-duct, while the cystic duct was mechanically closed. The bile, as secreted, escaped drop by drop from the capillary end of the tube, and the rate of secretion was estimated by the number of drops per minute. It was first determined that after the operation, and under circumstances otherwise normal, the flow of bile steadily diminishes.

There could be little doubt, *à priori*, that the secretion would be affected in amount by alteration of the blood-supply to the liver, and such was found to be the case. Compression of the trunk of the vena portæ markedly diminished the secretion, but did not completely suppress it; obstruction of the hepatic artery alone diminished the rate of flow slightly; while complete arrest of the hepatic circulation by ligature of both these vessels was followed by entire cessation of the biliary secretion and speedy death. Diminution of the rate of flow was likewise the result of ligature of the ascending cava near the heart, and of ligature of the aorta above the diaphragm; while ligature of the latter vessel below the cœliac axis caused a slight increase in the amount of bile discharged. These last two results are very significant when studied together. Since ligature of the ascending cava in the thorax, and of the aorta below the origin of the hepatic artery have an exactly opposite effect upon the amount of bile secreted, and an exactly similar effect upon the hepatic capillaries—namely, a rise of the pressure within them, it follows that the amount of bile does not depend alone on the height of the blood-pressure in the liver. The influence of the amount of blood upon the secretion is further seen after section of the splanchnics and after section of the cervical portion of the spinal cord; both operations being followed by increased flow of bile. On the contrary, irritation of the cervical cord (reflexly through a sensory nerve) diminishes the flow. No noteworthy effect was observed by Röhrig of irritation or section of the vagi sympathetici. Anæmia induced by phlebotomy and injection of warm water into the circulation reduced the secretion in amount until it finally ceased.

More interesting to the practical physician are the results observed by Röhrig of the introduction of different substances into the alimentary canal. Chyme injected into the gut markedly increased the amount of discharge—a result exactly in agreement with those of former experiments on the condition of the liver during digestion. Similar injections of tepid water and bile caused a temporary increase of the discharge. The most striking results were obtained after the administration of several of the so-called purgatives, and are worthy of our careful attention, even should the action of the various drugs be different in man. The substances employed were croton oil, colocynth, jalap, aloes, rhubarb, senna, sulphate of magnesia, calomel, and castor oil; and the chola-

gogue power of these was found to diminish very much in the order in which they have been enumerated. Croton oil decidedly induced the most abundant flow of bile; castor oil had the least action of all. In all the cases the increased biliary flow was preceded by hyperæmia of the intestine, and followed—never preceded—by diarrhœa. Röhrig concludes that "these substances undoubtedly excite the production of bile." Less is said of the effects of mercury upon the secretion than might have been desired. It was found that large doses of calomel (twenty grains for a dog) are seldom able to excite flow of bile, if it is quite stopped previously; but if the secretion is simply diminished, it may be increased by the administration of the drug. The greatest action was observed about three hours after administration; it then speedily ceases. There is almost no doubt that the effect of purgatives upon the liver is not to be referred to their immediate action upon the intestine, but to their absorption into the circulation. This is almost proved by two experiments of Röhrig. On the one hand, he found that irritation of any portion of the alimentary canal from the mouth to the anus (including the duodenum), or of the peritoneum, either by mechanical, electrical, or chemical stimuli, had apparently no certain effect upon the secretion of bile. Even when the electrodes were sunk deeply into the substance of the liver, no effect of galvanism was observed. On the other hand, the injection of infusions of senna and rhubarb into the veins immediately and greatly increased the amount of bile secreted.

A more difficult investigation was that of the effect upon the secretion of bile of interference with respiration, and the results obtained were somewhat variable. In many instances there was at first a decided diminution of the quantity of bile, and this was found to correspond with a fall of the general blood-pressure, and was believed to be probably due to it. These phenomena were soon replaced by an increase of the quantity of bile secreted and diminution of the blood-pressure, to which it is probably to be referred. And, finally, there supervened a decline of the discharge and a venous condition of the blood in the body, which also probably stand to each other in the relation of effect and cause.

Röhrig investigated the action of four other drugs upon the liver, as far as it is a bile-secreting gland—namely, strychnia, acetate of lead, carbonate of soda, and opium. Strychnia was found to diminish the secretion; a result which was to be expected in view of the last-mentioned experiment, for strychnia is known to raise the blood-pressure. Acetate of lead was tried, on account of its recognized action on the bloodvessels; when injected either into the intestine or into the veins it diminished the secretion. A similar result was observed after the administration of a solution of carbonate of soda in the same way. Opium increases the secretion of bile; it would appear, therefore, that opium constipates not by arresting the alimentary secretions, but by its action upon the muscular coat of the intestines. Finally, the experimenter confirms Schmulewitsch's observation, that defibrinated blood injected into the portal vein immediately after the complete separation of the liver from the body, causes the secretion of some drops of bile, while a similar injection of salt solution has no effect. The conclusions at which Röhrig arrived are thus briefly stated by himself:—"From all the experiments which I have described, it appears to result that the quantity of fluid which escapes from the biliary vessels of curarized dogs and rabbits is dependent on (1) the vascularity of the abdominal viscera, and (2) the quality of the blood."—*Med. Times and Gaz.*, July 19, 1873.

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4. *The Physiology of Menstruation.*—It is probably the general belief among physiologists and the profession in general that during menstruation one or more ova reach the uterus, and there either become attached to the surface of the mucous membrane or disappear, according as fecundation has occurred or not. If an embryo is developed from the ovum it will correspond with the menstruation immediately preceding—or, in other words, pregnancy will date from the menstruation which last occurred. Dr. KUNDRAT, of Vienna (Rokitansky's senior Assistant), has just published an account of certain researches of his upon the anatomical condition of the uterine mucous membrane before,

during, and after menstruation, which throws very grave doubts upon the correctness of this belief (*Medizinsche Jahrbücher*, 1873, vol. ii., p. 135). Kundrat's investigations are all the more worthy of attention that they were of a purely anatomical nature. He examined the mucous membrane of the human uterus in the intervals of menstruation, immediately before the hemorrhage, during the hemorrhage, and again after it had ceased, and the results which he obtained are certainly in favour of the considerable modifications which he would introduce into the physiology of ovulation and menstruation as presently received. The mucous membrane of the human uterus in the "state of rest" has certain peculiarities, as pointed out by the author. There is no submucous tissue, and the mucosa comes into immediate union with the muscular layer. Its matrix is peculiarly rich in round or spindle-shaped cells. The glands, which it is known to possess in great numbers, are lined, like the free mucous surface, with ciliated epithelium. This condition is markedly altered at the monthly period of uterine activity. The mucous membrane is swollen, thick, loose, and almost diffluent, covered with a whitish or bloody mucus, finely injected at spots, and in many cases uniformly coloured of a deep red. A microscopical examination reveals increased abundance of the cellular matrix, especially at the surface, with great elongation and dilatation of the glands. So far there is nothing specially original in the description given by Kundrat, but new and important facts remain to be enumerated. He discovered, in the first place, that the condition of uterus just described probably precedes the occurrence of the discharge of the ovum and—what is perhaps more striking—the menstrual flow by "several days." The author considers that this observation goes far to prove that the uterus is prepared for the reception of the ovum a certain time before the rupture of the Graäfian vesicle. Again, while the rough characters remain as described during the menstrual flow, with the addition of the oozing from the surface, and for a short time after it has ceased, careful examination reveals a very remarkable change in the microscopic appearances. The cells of the stroma and the vessels, as well as of the epithelium of the glands and surface, are dull in appearance and filled with fat granules. The question occurs, What is the relation of the hemorrhage to this fatty degeneration of the cells and vessels? Kundrat replies by stating his belief that the hemorrhage does not cause the fatty change, but is caused by it. He refers to the fatty change which is known to occur at the end of pregnancy, and would consider the two phenomena homologous. He also points out the improbability of the cause of the flow being found in congestion, as this occurs frequently without hemorrhage. One fact he has ascertained, is, that the fatty change is most abundant at the surface of the mucosa, where the bleeding takes place. The anatomical sequence of events, therefore, according to Kundrat, at the monthly period of uterine activity is—swelling of the mucosa, fatty change in the cells and vessels, vascular rupture, and hemorrhage. With the blood much altered epithelium is thrown off, but not the whole mucosa, as some believe. It is a short time after the cessation of the menses before the mucous membrane has returned to its "condition of rest."

In inquiring now into the physiological relations of the three processes—the swelling of the mucosa, the discharge of the ovum, and the flow of menstrual blood—Kundrat insists strongly upon the ascertained chronology of the events. The first mentioned of the three is the first in order of time, and it is almost certainly the preparation for the reception of the ovum. It is much more improbable that the uterus during the menstrual flow is in a condition suitable for this function—with a retrogressive process going on in the mucosa, its vessels ruptured, and its surface discharging blood. It is even more improbable that the mucosa in this state of degeneration will on the descent of an ovum take on a totally opposite process, and become highly developed. The type of the impregnated uterus is seen in the active uterus when the mucosa is swollen and menstruation has not yet commenced. If the bleeding does commence, it is a sign that the ovum has perished, and that the mucosa is returning to its state of rest. Thus we arrive at the highly important conclusion that a developing ovum, or growing embryo, belongs not to a menstrual period just past, but to one just prevented by fecundation. Löwenhorst has already expressed

this opinion from a consideration of the clinical aspects of menstruation, and we believe that the method of calculating the duration of pregnancy suggested by the new facts is not altogether a new one among the gynæcologists and practitioners of this country.—*Med. Times and Gaz.*, July 26, 1873.

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5. *New Sign of Death.*—Dr. Liebsch states it is well known that when the cornea of a living eye is punctured to evacuate the aqueous humour the pupil always contracts; this he asserts does not occur when the puncture is made in the eye of a dead person. He points this out as a simple and certain means of diagnosis of apparent from real death.—*Revue des Sciences Médicales*, July, 1873, from *Vierteljahrs f. gericht Med.*, April, 1873.

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6. *Influence of Changes in the Barometric Pressure on the Phenomena of Life.*—Some time ago M. Bert showed that the evil results which immediately follow the too rapid passage of men (*e. g.*, in divers), ascending rapidly after submersion at a considerable depth, or of animals from compressed air at a pressure of several atmospheres to the normal pressure, are due to the formation of bubbles of gas in the blood. These are due to the nitrogen which was dissolved in the blood during the continuance of the pressure returning to the gaseous condition when the pressure is removed. The bubbles of gas arrest the circulation in various parts of the body, and especially in the lumbar portion of the spinal cord, where they give rise to paraplegia or softening. When they occur in large quantity they obstruct the pulmonary circulation, distend the heart, and cause death more or less rapidly. The danger arising to different animals from sudden removal of pressure varies with the species, and even with the individual. It seems to increase with the size; and, whereas a rapid change from 11 atmospheres to one is requisite to produce death in sparrows, a change from 9 atmospheres will cause it in cats and rabbits, from 7 or 8 in dogs, and in man from 5 atmospheres. Paraplegia generally occurs in dogs after a change from 7, and death from 7½ atmospheres. In seeking an explanation of these differences, M. Bert found that the arterial blood of a dog breathing air at the normal pressure is almost saturated with nitrogen at that pressure. Blood collected over mercury from a dog exposed to an increasing pressure begins to disengage bubbles of nitrogen when the pressure of the air which it respires has attained 3 atmospheres, but no bad effects appear till the pressure has been carried to 7 atmospheres. There is, therefore, a time after the animals have been exposed to pressures varying from 3 to 7 atmospheres, when the blood contains small bubbles of gas, although the animals do not seem to suffer. The reason of this is, that the bubbles are so extremely small that they pass through the capillaries without causing any obstruction, and gradually disappear. During this time, however, the animal is in great danger; and, if the bubbles should happen to aggregate and obstruct some of the vessels, accidents will occur. Thus it happens that some divers are paralyzed, or even killed, by diminutions of pressure which do not affect others.

While he was seeking to investigate this problem still further, M. Bert's apparatus unfortunately exploded, and he was thus deprived, for the present, of the means of prosecuting his researches. At the time when the explosion took place, a dog was contained in the apparatus, and subjected to a pressure of 9½ atmospheres. The dog seemed well during the continuance of the pressure, but, when the apparatus burst, it died instantaneously. Not only were all the bloodvessels filled with gas, but the abdominal walls were distended with it, and there was general emphysema of the subcutaneous and intercellular connective tissue. This shows that the gas may become stored up in the other fluids of the body, as well as the blood; and the reason why the author has not noticed this before is, that in all his other experiments the pressure has been diminished too gradually. He considers that the horrible itching, to which divers give the name of fleas, and the muscular swellings which they call *mouton*, are due to a slight gaseous infiltration of the cellular tissue. The unfortunate destruction of his apparatus prevents M. Bert at present from pursuing his studies regarding the best means of preventing the occurrence of accidents

from the diminution of atmospheric pressure. He has already, however, discovered some very important practical rules. In order to prevent accidents, the pressure must be diminished very circumspectly. If it have reached 9 or 10 atmospheres, at least 12 minutes per atmosphere must be allowed for the removal of the pressure, in order to avoid all danger. It seems better to diminish the pressure rather quickly, by 1 or 2 atmospheres at a time, and then to leave it constant for some time, than to diminish it more slowly and constantly.

When accidents have occurred, and paralysis has taken place, and death is imminent, the author thinks the best thing to do is to increase the pressure at once, so that the gas which has become free in the blood may at once be re-dissolved. His apparatus has not permitted him to increase the pressure with sufficient rapidity to obtain successful results with animals; but in the case of divers it can be done with the greatest ease by making them descend again to a sufficient depth. Although M. Bert has not succeeded in removing the bubbles of nitrogen gas from the blood of animals in this manner, he has managed to do it by making them inhale oxygen. The nitrogen then diffuses rapidly from the blood as it circulates in the pulmonary vessels into the oxygen with which the lungs are filled. When a dog, in whose heart a gurgling sound was heard, and whose jugular vein was distended with gas, was made to inhale oxygen, the distension of the vein very quickly disappeared, the cardiac sounds became normal, the respiration became regular, and the rapidly impending death was averted. After several hours, however, paralysis occurred, and this was seen on post-mortem examination to be due to minute bubbles of gas in the small vessels of the nerve-centres, which has caused local arrest of the circulation. In this manner they had both destroyed the vitality of the nerve-centres, and at the same time prevented their own removal, for free gas had entirely disappeared from the blood in the general circulation. The inhalation of oxygen, however, prevents immediate death, and it may be employed to preserve life till the atmospheric pressure can again be raised sufficiently to induce the more or less complete reabsorption of the bubbles of gas, and thus re-establish the circulation. When this is once effected, all further danger may be avoided by simply diminishing the pressure again very gradually. M. Bert advises that all divers and workmen who are exposed to danger from sudden diminution in atmospheric pressure should inhale oxygen whenever they feel, after ascending, any uneasiness which may occasion fears of something serious. After inhalation, the atmospheric pressure may be again raised by descending, if it be thought advisable. The author considers that the same treatment might be successfully employed in accidents arising from the introduction of air into veins.—*London Med. Record*, June 18, from *Comptes Rendus*, March 3, 1873.

MATERIA MEDICA, GENERAL THERAPEUTICS, AND PHARMACY.

7. *Constitution and Action of Croton-Chloral Hydrate.*—Dr. OSCAR LIEBREICH gave an account of the action of this substance, comparing it with chloral hydrate, and pointing out some of the conditions indicating its use. Its action differed from that of chloral hydrate in that, while it produced sleep, it did not affect muscular tone or interfere with circulation or respiration. Its use was indicated where chloral hydrate was inapplicable on account of heart-disease; and in cases of neuralgia affecting the trigeminal nerve. Where large doses of chloral were necessary to procure sleep, Dr. Liebreich recommended the addition of some croton-chloral.—*Proceedings Brit. Med. Assoc.* in *Brit. Med. Journal*, Aug. 30, 1873.

8. *Local Applications of Chloral.*—Chloral, besides its hypnotic properties,

seems to possess an antiputrid action. Either the hydrate of chloral, or what is called metachloral, may be used. The latter, according to Dumas, is prepared by placing in a bottle with an emery stopper some chloral and five or six times its weight of sulphuric acid. The next day the chloral is transformed into metachloral, which must be well washed with water to remove the sulphuric acid. It is a coarse white powder, smelling strongly of chloral, hardly soluble even in boiling water, and distilling between 150° and 200° C. without melting. Regnault has shown that it is similar in composition to chloral, and its formula is $C_4HC_3O_2$, being simply an isomeric modification of chloral. Dr. Dujardin-Beaumetz, of Paris, has lately experimented on the local application of chloral as a caustic or modifying agent and a local anæsthetic. It may be applied in substance, which mode is rather difficult, or in solution of different strength—namely, one or two per cent. in water or glycerine. Metachloral is applied in powder upon foul wounds, replacing advantageously iodoform, the smell of which is so disagreeable. Cases are given where the application of chloral has been of much use in gangrene, phagedena, rodent ulcers, lardaceous ulcerations, certain diseases of the skin, lupus, and for modifying the cavities of abscesses, etc. It is of much value in relieving the pain of cancerous ulcerations; and, as chloral possesses the property of preventing decomposition of the urine, Dr. Beaumetz thinks that in certain diseases of the bladder it may be usefully injected into that viscus.—*Lancet*, Aug. 30, 1873.

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9. *Therapeutical Value of Phosphorus.*—In an interesting paper on the physiological action and therapeutic effects of phosphorus, M. Gubler states that phosphorus is a diffusible stimulant of great energy and of dangerous activity. It should therefore only be prescribed with the greatest possible caution, and certain contra-indications may in the first instance be laid down. Thus it should not be used in any affection characterized by nervous, circulatory, or trophic excitation, as in tonic and clonic convulsions, contractions, neuroses having a hypersthenic origin, diffuse peri-encephalitis with general paralysis, phlegmasiæ of all forms, fevers of every kind, exanthematous affections, etc. The indications for its use are the existence of disease unaccompanied by inflammation, fever, and nervous excitation, and especially in such cases as are characterized by depression of the circulation, either local or general, diminished power of generating heat, exhaustion or local asthenia, with paralysis of sensation and movement. Hence its value in cachectic states consecutive to long and exhausting diseases, marsh fevers, protracted convalescence, tabes dorsalis, paralyses of old date, and of cerebral, medullary, or peripheric origin, when there are no signs of irritation; in hemiplegia, paraplegia, amaurosis, and other partial paralyses. Phosphorus again is sometimes useful in making chronic eruptions advance or recede; but it is especially as a remedy for impotence that it has been praised, though it has often disappointed the expectations of those who have prescribed it, and has either proved of no value at all, or its effects have only been ephemeral. Hence it would appear that the real remedial power of phosphorus is considerably restricted, and that it can only be regarded as of great value in paralytic affections. Dr. Delpech, who has studied so deeply the effects of sulphuret of carbon, praises phosphorus highly as an agent to remove the paralysis and loss of power which accompany intoxication by that substance. It is also of service in the so-called rheumatismal and hysterical paraplegiæ, or in other words those forms of paraplegia which are not caused by organic lesion, as well as in cases of cerebral disease in which all irritation has ceased and cicatrization has taken place. It is still more strongly indicated in cases of asthenic and diffused paralysis, consequent on diphtheria or some other acute affection. Gueneau de Mussy, Isambert, and Féréol have all found it efficacious in the treatment of mercurial tremour; it is also believed to be so in paralysis agitans and in the various forms of medullary sclerosis affecting the antero-lateral cords, and above all in sclerosis of the posterior columns, the symptomatic expression of which is summed up in the term locomotor ataxy, which has been applied to it by Duchenne. Dujardin-Beaumetz is he who has most strongly recommended the plan of treatment by phosphorus in this and similar affections; but it is questionable, M.

Gubler thinks, how far many of the successes attributed to its use are really due to its remedial powers. We forget, he says, the natural processes of cure that often take place. Phosphorus is an active agent that may momentarily re-illumine the fading spark and revivify the languishing powers of life; but as it brings no energy with it, it impoverishes rather than enriches, and can do little for a nervous system exhausted by a chronic affection. The amorphous phosphorus is perhaps the best mode of prescribing it, as this possesses no exciting or irritating action. Externally, it has been chiefly employed in squamous affections of the skin as a parasiticide in itch and as a caustic in the place of the moxa. Recently Tavignot has declared that it will render the cataractous lens transparent, but the negative facts obtained by MM. Gosselin and Maisonneuve render this more than doubtful. In regard to the mode of its administration, solutions are usually preferable to pills. Amongst the former are the ethereal tincture, which contains one part in sixty, and of which ten drops are a dose; the solution in chloroform, which is now almost abandoned; and the solution in oil, which is by far the best, and especially that prepared by Méhu. Here the oil is dehydrated and decolourized by exposure to a heat of 250° C., and the phosphorus is added when it was cooled. A twentieth part of ether is then added. The proportion is one part of phosphorus to 500 of oil, and it contains two milligrammes in fifteen drops. Each capsule contains one milligramme.—*The Practitioner*, July, 1873, from *Bulletin Général de Thérapeutique*, May 30th, 1873.

10. *Nitrate of Zinc as a Caustic.*—M. LEFORT describes (*Journ. de Pharm. et de Chimie*, May, 1873) a caustic paste prepared from nitrate of zinc, which has been reported on favourably by Drs. Clément and Desgrange, of the Hôtel-Dieu, Lyons. The nitrate is prepared by dissolving commercial zinc with heat in equal volumes of nitric acid and water, maintaining an excess of zinc, and concentrating until a slight basic precipitate is formed, which carries down any iron present. Boiling water is then added, and, when cool, the solution is filtered, and evaporated at a gentle heat until slight ebullition takes place; if then left to cool, it forms a cake, which should be broken up and drained in a glass funnel. Of the nitrate of zinc so prepared, 100 grammes are dissolved in 50 grammes of water, and afterwards incorporated with 50 grammes of wheaten flour. This forms an homogeneous paste, which remains soft, spreads easily over surfaces without afterwards contracting, and does not spread at the edges through absorption of moisture. When made into cylinders, it should not be dried by heat, as it slightly decomposes and becomes yellow and friable; it may be kept dry by placing it in a tin box with some pieces of quicklime, but not in contact with them.—*London Medical Record*, June 18, 1873.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

11. *Pathogeny of Spontaneous Cerebral Hemorrhages.*—A writer in the *Mouvement Médicale* (Jan. 11, 1873) remarks that until now the causes to which spontaneous cerebral hemorrhages have been assigned are sclerosis of the small cerebral arteries and fragility of the vascular walls due to atheroma or fatty degeneration, etc. MM. Charcot and Ch. Bouchard, relying on a great number of careful observations, have rejected arterial sclerosis as the cause, and have pointed to the presence of miliary aneurisms as leading to spontaneous hemorrhages. For several years past Zenker has applied himself to the verification of this fact, and in every case that he has himself examined with sufficient care, has determined the presence of miliary aneurisms, not only in the neighbourhood of the hemorrhage clot, but in other parts of the brain. They are true aneurisms, that is to say, they are formed by a vascular dilatation

bounded by all the arterial coats. These minute aneurisms were described long ago by Virchow, but it is unquestionable that MM. Charcot and Bouchard were the first to discover their frequent presence and their pathogenetic influence in spontaneous cerebral hemorrhage. They may be seen with the naked eye, being sometimes scarcely visible, and sometimes about the size of a pin's head. Occasionally they are isolated, but may also be found scattered through the whole extent of the brain. The usual course of cerebral hemorrhages is as follows: The inner coats of the arterioles first become ruptured, and thus give rise to the formation of a dissecting aneurism. This state of things may continue for some time; or, in consequence of a process of regression, nothing remains but a little pigmentary tubercle. Lastly, in other cases the adventitious tunic at length becomes ruptured, and gives rise to a cerebral hemorrhage.

So far Zenker agrees with MM. Charcot and Bouchard, but he differs from them on the following points. While the French authors consider arterial sclerosis as altogether independent of the formation of these minute aneurisms, Zenker, on the contrary, is persuaded that they are due to sclerosis of the inner coat of the cerebral arterioles—a fact which was long since pointed out in regard to aneurisms of the larger arteries. Even if miliary aneurisms may exist without any alteration of the arteries at the base of the brain, microscopical investigations have nevertheless shown that in the neighbourhood of these miliary aneurisms the inner coats of the arterial branches have undergone peculiar changes, consisting of irregular thickening and sclerosis, and sometimes of fatty degeneration.—*Lond. Med. Record*, April 30, 1873.

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12. *Case of Local Softening of the Brain from Thrombosis of Syphilitic Arteries.*—By Dr. J. Hughlings Jackson. A gentleman aged thirty-eight, in apparently good health, was first seen in July, 1867, for recent (July 14th) paralysis of the parts supplied by the left portio dura nerve, and for recent partial deafness of the left ear. There were also remains of paralysis of the right leg, which had begun in April. He rapidly got rid of all his nervous symptoms after taking iodide of potassium; but he did not continue the drug because he believed all his ailments to be owing to ague-poison. He had been in the West Indies, and still remained subject to slight shivering attacks. He had had primary syphilis fifteen years before. He remained well until March 2, 1868, when he became hemiplegic of the left side. He would not take any drugs except aperients. Nevertheless, in about a week he was apparently well again; but on March 21st he was found apoplectic and again hemiplegic—this time of the right side. He died next day. At the necropsy there were found diffluent softening of part of the right corpus striatum, and also softening of the left corpus striatum. There was syphilitic disease of each middle cerebral artery. Thrombosis of each at the part diseased accounted for the two local softenings, and for the two attacks of hemiplegia related to them. The random succession of symptoms in this case was very characteristic of syphilis. Dr. Hughlings Jackson said that the case showed one of the several very indirect ways in which syphilis caused nervous symptoms. The hemiplegia in such a case was dependent directly on softening of the corpus striatum, produced by thrombosis of a syphilitic artery. The "syphilitic hemiplegia" here illustrated was but one of three kinds producible by syphilis. Again, the case showed that recovery would occur from hemiplegia, notwithstanding that the damage which caused that hemiplegia was not altogether repaired. Iodide of potassium was not likely to be useful in such a case of hemiplegia, though syphilitic; while it was useful in cases of recent palsies of cranial nerves. In treating the latter we were treating recent syphilitic disease; whilst in treating the kind of syphilitic hemiplegia under remark, we were treating local cerebral softening.—*Proceedings Brit. Med. Assoc.* in *Brit. Med. Journal*, Aug. 30, 1873.

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13. *Uncommon form of Uric Acid Crystals observed in the Expectorations and in Saccharine Urine.*—Dr. J. W. Moore states (*Irish Hospital Gazette*, July 15, 1873) that he examined the sputum of a gentleman who had for some time been troubled with certain gouty symptoms. In addition to epithelium,

pus and mucus corpuscles, the sputum, which gave a *neutral* reaction with test-paper, contained a number of very delicate, spear-headed, apparently octahedral crystals, the exact nature of which I found considerable difficulty in ascertaining. The finer crystals resembled those of stearine or stearic acid, as figured by H. Lebert (after Funke) in his work entitled *Traité d'Anatomie Pathologique Générale et Spéciale* (Atlas, vol. i., plate cxcix., fig. 7). Others might readily be mistaken for diatoms, from their peculiar central marking and general size and shape; while a few of the largest bore a strong resemblance to spear-headed crystals of uric acid, as depicted by Dr. Lionel Beale (*Kidney Diseases, Urinary Deposits and Calculous Disorders*, third edition, plate xxvii., fig. 151, p. 384.)

On December 17th I had a second opportunity of observing these crystals in the expectoration of the same gentleman, and on this occasion I subjected them to a more searching chemical examination. By teasing out the sputa, I succeeded in setting free several of the crystals into some pure water. A drop of liquor potassæ was then added, and instantly the crystals disappeared. They also proved to be slowly soluble in strong acetic acid, but ether had no effect upon them. The conclusion drawn from this examination was that the crystals were composed of uric acid.

He further states that he had occasion to examine a specimen of diabetic urine, pale, and having a specific gravity of 1036, the quantity of sugar present being considerable. When the urine was allowed to stand, a visible deposit of uric acid rapidly took place. On microscopical examination, a normal quantity of mucus and epithelium was observed, in addition to which there were present numerous specimens of torula, and great numbers of uric acid crystals of various forms and sizes. Among others there were many examples of the delicate spear-headed or diatomic crystals I had noticed in the gouty expectoration last December. They all answered to the ordinary tests for uric acid, and of their precise nature no doubt could possibly be entertained.

The presence of free uric acid in the respiratory tract of gouty persons is a condition possessing much interest on etiological grounds. It can hardly be doubted that here we discover one cause, at least, of the tendency to, and occurrence of, bronchial affections in so many cases of gout. Irritation of the bronchial mucous membrane by delicate acicular and spear-headed, or (as they might be termed) diatomic crystals of uric acid, would surely be sufficient to induce a low or chronic form of bronchitis, which would become more and more aggravated as the gouty poison began in time to affect and weaken the heart.

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14. *Symptomatic Alteration of Muscles.*—Dr. GEO. HAYEM, of Paris, uses this expression to denote the changes which take place in muscle under the influence of most diseases. He had found them not only in acute specific diseases, but also in diseases of slow progress, leading gradually to marasmus and cachexia. The mode of evolution and the histological characters of the changes were found to differ according to the disease which they attended. The general result of numerous researches made by M. Hayem was to show that the muscular system indicates, in distinct anatomical characters, the general disturbance of nutrition which attends all diseases. It might be said, in general terms, that when nutrition suffers, the muscular tissue has a tendency to disappear, at least partly, more or less rapidly, in various ways. Along with this process of destruction, there is also, both in chronic cachectic states and in acute diseases, a constant effort at repair, attended with varying results. The new muscular fibres in all these cases are formed by proliferation, either of the pre-existing muscular cells, or of the cells of the connective tissue (the internal and external perimysium). M. Hayem had found changes in the heart analogous to those met with in the muscles of the body, both of destruction and of reproduction of muscular fibres. The paper was illustrated by specimens.—*Proceedings Brit. Med. Assoc.* in *Brit. Med. Journal*, Aug. 30, 1873.

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15. *Abscess of the Liver opening into the Ascending Cava.*—Dr. LEON COLIN, Professor at Val de Grace, records (*L'Union Medicale*, Aug. 5, 1873) a very remarkable, if not unique, case of this, observed by him in his service at

Val de Grace. At the autopsy it was found that an abscess of the liver had burst into the ascending cava, and that there were secondary purulent collections in the pulmonary parenchyma. During life, these purulent collections opened into a bronchus and the pus was expectorated, which led to the error of supposing that the abscess of the liver had penetrated through the diaphragm into the bronchi.

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16. *Epidemic of Typhoid Fever from Infected Milk.*—A very serious and extensive epidemic of enteric fever has recently prevailed in one of the wealthiest and (from a sanitary point of view) one of the best cared-for parishes in the west end of London. There have been about 500 cases distributed in 104 families, 96 of which are known to have used milk from the same dairy, the circumstances connected with the outbreak in the remaining 8 families have not yet been investigated. The mass of evidence points in a most striking manner to the milk of the particular dairy above referred to as at all events the carrier of the germs of infection.

The present Marylebone epidemic is apparently the eighth known instance in which typhoid (not to mention scarlet) fever has been scattered through families by means of their milk-supply. The first instance occurred at Penrith, and was ably investigated by Dr. W. M. Taylor; then followed the Islington epidemic, reported upon by Dr. Ballard, and in addition to these, epidemics in which milk was apparently the disseminator of the poison have occurred twice at Leeds, and once at Parkhead, Chester, Edinburgh, and lastly in Marylebone.

From the *Lancet* of August 16th, we learn that many facts have been noted which seem to point conclusively to the milk as the source of infection, and there is no stronger piece of evidence than that which occurred in the family of Dr. Murchison, which was the means in the first instance of giving a clue to the origin of the disease. The facts were briefly as follows: On July 22d the three eldest of Dr. Murchison's seven children sickened with typhoid within a period of twenty-four hours. On looking about for the cause he was convinced that it was not due to defective drainage or polluted water, and was inclined to think that it could not be the milk, for in that case it would have been reasonable to suppose that the four younger children, who have to a great extent a milk diet, would have been the first to suffer. On July 31st two of the younger children sickened. Dr. Murchison's house has been supplied with a double milk-supply; one quantity of milk for the household at large, and another quantity, which was always brought in a special sealed can, for the use of the baby and the occupants of the nursery. Up to July 31st those only suffered who had derived their milk from the ordinary household supply, while those who partook of the nursery supply escaped. On July 25th the nursery supply was discontinued in consequence of the departure of the baby for the country, and the three remaining younger children were thrown upon the household supply, and within six days of that date two of them were down with typhoid. It is worth adding, that certain members of his household who drank much water suffered in no way.

The fact, which at first did not seem to point to the milk, now admitted of a very different interpretation, and in the face of former experience it became at least probable that the milk was at fault. Several surgeons living close to Dr. Murchison have had typhoid in their households. In one case two children and two servants sickened; in the other case the family were away, but two of the servants had typhoid, and one of them has, we regret to say, since died from perforation of the bowel. At this latter house the person who brought round the milk remarked that, "wherever she went with the milk there seemed to be somebody ill." We have already received information of sixty-one families residing in the parishes of Marylebone, Paddington, and St. George's, which are infected with typhoid, and in all but two of these families, the source of the milk-supply is the same. Of the two cases which seemed at first to counterbalance to a slight extent the case against the suspected dairy, one has since been found to lend the strongest confirmatory evidence. In this case only one child sickened in a household not getting its milk from the suspected source, but the child itself had been to stay a few days with the family of a friend

getting its milk from the suspected source, and of this milk she drank largely; and in the same week the child who remained with its parents in London, and five members of the friend's household who had left London and returned to Derbyshire, sickened with typhoid simultaneously.

It is of course not for one moment to be supposed that every case of typhoid at present in London can be traced to milk-supply as a cause, but when the only connecting bond between sixty families in which typhoid is raging to a greater or less extent is the shop where they buy their milk, the suspicions against such shop are certainly justifiable, and we feel it our duty to give them publicity. Some of the cases are very extraordinary. A lady of title and a physician living next door to each other in Grosvenor Street obtain their milk from the same source, and a physician who lives opposite has seen the milk for these two houses *taken out of the same can*. Two of the servants of the lady of title have sickened with typhoid, and one of them has, we hear, since died in St. George's Hospital. In the physician's household there has been no typhoid, and apparently for the reason that it is a stringent rule of the house that the milk is all boiled as soon as received.

In the instance of the household of a well-known nobleman, the domestics have been supplied with milk from the suspected source, but the family itself from another source. Of the servants, five are down with typhoid, but none of the family have suffered. The ten members of the household who did not take the suspected milk drank the same water as the domestics.

The family of a lady of title in Brook Street consists of three children. The eldest drinks tea for breakfast, and has orange wine and water at night. The two younger children drink milk both at night and morning. The two younger suffered, while the eldest escaped.

In a family which does not get its milk from the suspected source there are two servants ill, and it turns out that a short time since, returning home hot and weary from a walk, these two servants sent out and purchased some milk from the suspected source. There are no other cases of fever in this family.

A young lady aged eighteen sickened at Norwood with typhoid in the last week of July. There were no other cases in the house (which contained many children), and no typhoid fever in the neighbourhood. It seems that she had been staying during the early part of July with some friends near Portman Square, that she had contracted measles there, and during her convalescence had drunk a very great deal of milk, which had come from the suspected source. Within three days of her return to Norwood she sickened with typhoid.

In a house in which four servants are living on board wages two of the servants get milk from the suspected source, and two do not. The two former have typhoid fever.

In the Middlesex Hospital there are at present nine patients with typhoid fever. Of these, two came from distant parts of London, and of the remaining seven, six have been getting milk from the suspected source.

In the London Fever Hospital on August 6th, there were three cases of typhoid fever, and of these two got their milk from the suspected source.

In University College Hospital there have been three cases (one of which had died) of typhoid, all of whom got their milk from the suspected source.

The investigation which has already been made by Mr. J. Netten Radcliffe and Dr. Whitmore serves to confirm that which, to all reasonable men, was a certainty. At one of the farms belonging to the dairy, situated at Chiltern Grove, near Thame, it has been discovered that one of the men employed died on June 8th, with all the symptoms of typhoid, and the son of this man is at present ill with the same disease. The sanitary condition of this man's house and the farm is exceedingly bad, and there can be no doubt that some of the water used on the farm has become contaminated with typhoid poison.

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17. *Treatment of Glandular Affections.*—Dr. F. PAGE ATKINSON gives (*Edinburgh Med. Journ.*, August, 1873) the following outlines of the treatment he has pursued for some years in glandular affections, and with satisfactory results.

In *Quinsy* he says: "I can predict with certainty that any patient will be

quite well and able to resume his duties on the fourth day; whereas, by the old method of treatment, the disease lasted from nine to ten days. I do not know of a single instance in which matter has formed, except prior to the time of the patient coming under my care. The prescriptions I give are the following:—

"20 grains of bicarbonate of potash; 30 minims of the compound tincture of guaiacum; as much as is necessary of the compound tragacanth powder, in one ounce of water, and 15 grains of citric acid, in half an ounce of water. To be taken in a state of effervescence, three or four times daily.

"25 minims of the tincture of iodine, in an ounce of water, to be used as a gargle three or four times daily; three or four glasses of port wine in the course of the twenty-four hours, and as much beef-tea as the patient can take.

"The throat should be left uncovered, and poultices, steam inhalations, etc., should be particularly avoided, as also should the use of purgatives. In these cases there is generally a rheumatic tendency; and it will be found on inquiry that there has been excessive mental or bodily exertion prior to the attack.

"Quinsy is not the result of cold; for, if it were, laryngitis would be a more frequent accompaniment than it now is. As regards the treatment, I would remark that it must be carried out in its entirety, or the results expected will not be obtained. When suppuration has already commenced, order simply the iodine gargle, the port wine and beef-tea, and omit all internal medicines.

"In the case of *Inflammation of the Breast*, give the following: 20 grains of bicarbonate of potash; 10 minims of spirits of nitrous ether; 10 minims of aromatic spirit of ammonia, in one ounce of water; and 15 grains of citric acid in half an ounce of water; and order to be taken, in a state of effervescence, every four hours.

"Apply to the breast an ointment consisting of three parts of the extract of belladonna, and one of iodine ointment. Keep the patient up with good, strong beef-tea, and if there is much fever, with a quick pulse, give port wine. The rationale of the treatment proposed is this: the effervescing citrate of potash, as stated above, acts as a febrifuge; the nitre relaxes the cutaneous vessels, and lessens the quantity of fluid which keeps flowing to the breast; while the belladonna soothes pain, and the iodine helps the absorption of the lymph which has been thrown out. Where abscess has already occurred, give 30 minims of the perchloride of mercury solution, 15 minims of spirits of chloroform, 15 minims of dilute hydrochloric acid, 60 minims of compound tincture of bark, in one ounce of water, three times daily, and paint the breast with a solution of nitrate of silver (2 grains to the ounce of water).

"I have rarely found it necessary to strap the breast, except when the abscess has been very deep, and the opening has taken place on the upper surface of the breast; and even in these cases strapping rarely proves of much service.

"In cases of *Inflammation of the Testis*, I order the effervescing citrate of potash, in combination with drachm doses of hyoscyamus. The testicle itself should be well supported, and kept covered with some lint dipped in a lotion of 15 minims of the tincture of opium and 15 minims of the tincture of belladonna to the ounce of water, and this again enveloped in oiled silk. This method of treatment will be found to lessen pain, and also the tendency to bubo. When the testicle becomes chronically enlarged, cover it with lint smeared over with blue ointment, and strap, and give the perchloride of mercury and bark internally. Where *Bubo* occurs by itself, give the effervescing citrate of potash and hyoscyamus internally; paint the enlarged gland with iodine; keep it covered with spongiopiline dipped in a solution of sulphate of zinc and alum (3 grains of each to the ounce of water), and enjoin rest. In both these cases, stimulants should be avoided, and the patient should only take a light diet. Barley-water may be recommended as a drink. Beef-tea, of course, should be freely given. Where the *parotid* becomes inflamed, give the effervescing citrate of potash and guaiacum, paint the gland with tincture of iodine, and then, when dry, apply a linseed-meal poultice which has been made up with a warm lotion, consisting of 3 grains of alum and 3 grains of sulphate of zinc, in one ounce of decoction of poppies. Port wine should be given according to

the necessity of the case, and plenty of beef-tea. Where there is *inflammation of the absorbents*, I order the effervescing citrate of potash and ammonia, and keep the limb incased in a poultice made up as above. When there is *suppuration*, I find it best to prescribe 3 grains of muriate of cinchonia, 15 minims of the tincture of the perchloride of iron, and 15 minims of spirits of chloroform, in one ounce of water, three times daily; port wine or brandy, according to the requirement, and beef-tea, as much as can be taken.

"In the case of *Scrofulous Enlargement of the Glands*, give the syrup of the iodide of iron internally, with small doses of gray powder and powdered pecacuanha, and paint externally with tincture of iodine; and the same treatment may be applied both internally and externally where there is an ulcerated surface. The local application of iodine certainly seems to effect more good than the nitrate of silver.

"Where there is *Enlargement of the Thyroid*, apply a lotion constantly, consisting of 3 grains of alum, 3 grains of sulphate of zinc, 3 grains of sulphate of iron, to the ounce of water, and give internally the following mixture: 3 grains of the bromide of potassium, 60 minims of Parrish's chemical food, 10 minims of tincture of digitalis, water to the ounce—three times daily. Pancreatic emulsion is also of use in giving nourishment to the nervous system. Underdone meat and plenty of farinaceous food should be also recommended."

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18. *Action of Cold Water on the Spleen.*—Dr. F. MOSLER has arrived at the following conclusions from experiments on the action of water on the exposed spleens of animals. 1. The immediate contact of water with the normal spleen produces a visible contraction of the organ, varying in degree with the temperature of the water and the duration of the application. 2. In a less degree, cold water exerts the same action on the spleen through the intestinal walls. The effect of a cold douche is greater than that of the application of cold compresses or pieces of ice; probably the mechanical influence plays a part here. The action of water is inferior to that of quinia in causing contraction of the spleen. 3. Cold water also produces diminution in the size of splenic tumours, both acute and chronic. 4. The febrile paroxysm in ague may be arrested by cold douches applied after Fleury's method. 5. The cold douche does not supersede the use of quinia either in recent or in chronic cases of intermittent fever. 6. The therapeutic action of the cold douche in intermittent fever is not complete. It does not prevent relapses nor the formation of splenic tumours. 7. The splenic tumour in typhus is reduced in size by the use of cold water. 8. Much good is to be expected from a combination of the application of cold over the spleen, either in the form of ice or of the cold douche, with the administration of quinia.—*British Med. Journ.*, June 21, from *Virchow's Archiv*, 1873, pt. 1.

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19. *Hydrocyanic Acid as a Remedial Agent in Delirium Tremens.*—Dr. HENRY B. DOW expresses his belief (*Brit. Med. Journ.*, May 31, 1873) that hydrocyanic acid fulfils all the indications in delirium tremens better than opium, digitalis, or belladonna. "It allays the irritation of the stomach, and checks the nausea and vomiting; it quiets the nervous excitement, and, by so doing, tends to produce sleep; and it also controls the action of the heart. It has the advantages of producing its effects quickly, and of not being cumulative, and is taken readily by most people. I have used it with the most satisfactory results, and will now mention my usual method of administration. I give it in combination with bicarbonate of potash, chloric ether, and camphor mixture, in doses of one, two, or three minims of the Pharmacopœia solution every two, three, or four hours, according to the severity of the case; and also find that benefit may sometimes be derived from the addition either of three or four grains of carbonate of ammonia, or a few minims of the compound spirit of ammonia. The patient is to be nourished by the administration of beef-tea, milk, etc., and wine or other alcoholic stimulants to be given, according to the discretion of the medical adviser; the less, however, the better. As soon as the worst symptoms have been relieved by the above treatment, the appetite is soon restored by the use of dilute nitric acid and decoction of cinchona."

20. *Nitrate of Potash in Acute Pneumonia.*—Dr. H. Macnaughton Jones extols (*Dublin Journal Medical Science*, July 1873) the value of nitrate of potash in doses of 15 grs. every three hours in acute pneumonia, and relates four cases in support of his views. These cases, he remarks, "show the action of the nitrate of potash in reducing the fever in acute inflammatory attacks of the lungs. I do not propose to discuss the method in which it cures the inflammation and arrests its progress, whether it be by promoting the absorption of its products through its action on the fibrin, or by a direct action on the blood through an effect on its corpuscles, or only a secondary influence by reducing the force of the fever, and lowering the force and frequency of the heart's pulsations. I am inclined, myself, to believe that it acts in both ways, and that the beneficial results which I have frequently witnessed coming on so speedily after its administration can hardly be altogether due to an indirect effect on the heart's action and on the general pyrexia. Nitrate of potash, in similar doses, has proved to me an invaluable agent in acute rheumatism, either by itself or combined with bicarbonate; and here, I think, we must look for an explanation other than above stated, and attribute its power to its direct action on the inflammatory blood." It should be remarked that in these cases Dr. J. gave at the same time large doses of quinia, and covered the chest with flaxseed poultice.

[Nitrate of potash was a favourite remedy of the late Professor Chapman in acute pneumonia and rheumatism, and we have often witnessed its beneficial effects.]

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21. *Oxide of Zinc in Infantile Diarrhœa.*—Dr. E. Mackey, of the Children's Hospital, Birmingham, extols (*British Medical Journal*, July 12, 1873) the value of oxide of zinc in infantile diarrhœa. It has given him, he says (suitable diet being prescribed) excellent results in all the varieties of that disease, notably in those complicating hooping-cough. The doses may be one grain for any age under two years, and may be given with a little syrup, mucilage, etc., three or four times daily, not on an empty stomach.

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22. *Carbolic Acid in Dysentery.*—Dr. Amelung, of Carlshafen, states that he has treated two epidemics of dysentery with carbolic acid, losing only two patients out of eighty, one of whom was a very old woman, and the other an infant of six months. If hard fecal masses can be felt through the abdominal walls or found in the stools, he begins the treatment with a castor-oil emulsion; if not, he commences with carbolic acid at once. The strength employed is a ½ per cent. solution. His formula is nearly as follows: Carbolic acid, 15 grains; rectified spirits of wine, 15 minims; tincture of opium, 15 to 20 minims; mucilage and poppy syrup, of each 6 drachms; distilled water to 3 ounces; a tablespoonful to be taken every two hours. To children he gives smaller doses according to age. He has often given his patients as much as seven or eight grains of carbolic acid in the twenty-four hours, and has never had the slightest symptom of poisoning. His experience of former epidemics does not allow him to attribute these favourable results to the small quantity of opium contained in the prescription.—*Lond. Med. Record*, April 30, 1873.

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23. *Elimination Treatment of Cholera.*—Dr. Wm. Sedgwick directed attention to the fact that, in cases of cholera, purging was apt to cease when collapse became intense, owing to inability of the bowels to expel their contents. This cessation of purging was followed by abdominal distension from the accumulation of the rice-water flux; and the attempts to restore the action of the bowels by purgative drugs had signally failed. The assumed elimination, by means of purgatives, of an assumed poison in cholera, was undoubtedly based on a misapprehension of the pathology of a flux; and the practical conclusions to be drawn from the evidence adduced were that in a fully established case of cholera, the cathartic method of treatment would tend (1) to deepen the collapse, (2) to increase the flux, and (3) to weaken the expelling power of the alimentary canal. —*Proceedings Brit. Med. Assoc.* in *Brit. Med. Journal*, Aug. 30, 1873.

24. *Gelatine Suppositories for the Relief of Fecal Accumulations.*—Dr. NAGEL strongly recommends the use of gelatine suppositories for the relief of accumulations of hardened feces in the rectum and sigmoid flexure of the colon. The lower down in the intestines these accumulations descend, the harder and more bullet-like and more decomposed they become. They lose their plasticity, or in other words, their power of adapting themselves to the cylindrical shape of the bowel. They also become heavier, and sink downwards into the hollow of the ileum; they increase or even obliterate the normal Roman-S-like curve of the colon, elongate the rectum, extend behind the bladder, lie across the uterus, and push the bladder towards the left side. This is particularly the case in aged persons. Hence, perhaps, the surgical reason for making the incision on the left side in lithotomy, because it is easier in this way to reach the bladder, and to avoid wounding the rectum. These fecal accumulations may be induced by enlargement or retroversion and retroflexion of the uterus, or through the bladder being only partially emptied of its contents, or by hypertrophy of the prostate, or through the calibre of the rectum being diminished by internal hemorrhoids; defective innervation, atony, and want of due reflex irritability of the bowel, with thinning and atrophy of its muscular coat, may also set up coprostasis. These conditions are common in apoplectic and paraplegic cases. The indications for treatment must therefore be to macerate and soften the fecal masses, since they constitute fresh hindrances to a due action of the bowels, giving rise to stretching and paralysis of their muscular coat, and cause flatulence, prolapse of the rectum, involuntary emission of semen and urine, hernia, with venous congestion, and other similar inconveniences. After discussing various objections to eccoprotics, drastic purgatives, enemata of various kinds, and even to suppositories of cacao butter, Dr. Nagel states that suppositories of brown gelatine have been found by him to be of the greatest service in cases of obstinate coprostasis. He finds that when these suppositories have been first soaked for twelve hours in cold water, so as to be moderately swollen and soft on their exterior, and are then pushed as far as possible into the rectum, they gradually break up and soften the hard, bullet-like masses, and make them so soft and slippery that, when the patient's diet and regimen are carefully regulated, we may confidently expect a copious natural evacuation of pultaceous consistence in the course of little more than twenty-four hours. The explanation of their *modus operandi* is to be sought in the hygroscopic property of the gelatine. The suppositories should be introduced in the morning.—*Allgemeine Wiener Med. Zeitung*, April 1, 1873.

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25. *Echinococcus of the Spleen; Recovery.*—Drs. ROSENSTEIN and SANGER record a case of this in a woman æt. 37, who, previously quite healthy, began to suffer intense pain in the left side about two and a half years ago, and this became steadily worse, while, at the same time, a tumour grew at the painful spot. The tumour was found to be in connection with the spleen, and reached downwards seven centim. below the umbilicus, and formed a curvature towards the right and upwards, the extremity being at the xiphoid cartilage. The area of dulness of the spleen commenced at the ninth rib. The tumour fluctuated distinctly, and was very painful; it did not move with the motions of the diaphragm, and was not covered by any portion of the bowel. An exploratory puncture evacuated a limpid fluid of 1.007 sp. gr., which gave an opaque precipitate upon boiling, or upon addition of an acid. After the puncture the tumour disappeared, but returned in a few days again, much larger than before. A second and a third puncture gave exit to a purulent fluid, in which no hooks, or portions of such, were ever found. This, and the circumstance that the fluid which was at first removed contained albumen, made the presence of echinococci, at first supposed, seem improbable, and the diagnosis was restricted now simply to that of a cyst of the spleen. The increasing size and pain of the tumour made its extirpation necessary, and the operation was performed with perfect success. The cyst which was removed proved, after all, to be an echinococcus sac, in which several cysts, from the size of a pea to that of a hazel-nut, were found. Scolices, or elements of these, could not be found, so that it was an instance of so-called acephalocyst. The most remarkable points in this

case are the occurrence of a solitary echinococcus in the spleen, the great painfulness of the tumour, and the presence of albumen in the fluid first removed.—*Irish Hosp. Gaz.*, August 15, 1873, from *Berliner Klin. Wochenschrift*, No. 20.

26. *Preventive Treatment of Uric Acid Calculi.*—Dr. Geo. Harley limited himself to the consideration of the means of arresting the formation of uric acid calculi, and facilitating the discharge of those not already too large to be voided by the natural channel, which included all calculi not exceeding the size of field-beans. Tea, coffee, wines, and beers were to be prohibited, or, at least, prescribed in very great moderation, to patients labouring under the uric acid diathesis. He next alluded to the recent proposal of Dr. Day, of Victoria, to give ozonic ether in such cases, and passed on to the consideration of the alkaline treatment. From the very earliest times, alkalies had been resorted to with the view of retaining uric acid in solution until its expulsion from the body; and what the ancients did empirically we moderns did scientifically by improved methods and with much greater success. The alkalies now in most general use were soda, potash, and lithia, in the form of carbonates, citrates, and acetates. Ammonia, on the other hand, was avoided in the uric acid diathesis, on account of the salt which it formed being less soluble than any of the others. The common idea was, that the action of alkalies in the uric acid diathesis was solely and purely a chemical one. There no doubt existed a chemical action, and that a most important one; but beyond this, there was an important physiological action produced in the body, through which the oxidation process was so much increased as to transform the little soluble uric acid into the very soluble urea. To Dr. Basham was due the establishment of this as a clinical fact. In the treatment of the uric acid diathesis, more depended on the dose than on the kind of alkali given. As a general law, it was unnecessary to render the urine more than neutral, except in cases where we were attempting the dissolution of stones already formed; but, even then, there was danger in making the urine either too alkaline, or retaining it in an alkaline state for too great a length of time. Dr. Nunneley found that from ten to eighteen drachms of citrate of potash in twenty-four hours notably diminished the excretion of urea; and Dr. Basham found that half-drachm doses given three times a day augmented it to even double or treble its previous amount. Dr. W. Roberts, of Manchester, found that while sixty grains of carbonate of potash to a pint of water daily dissolved twenty per cent. of an uric acid calculus, the solvent power of the solution gradually diminished as the solution was made weaker or stronger. Dr. George Harley called attention to the very great importance of the quantity and quality of the drinking water. Patients who had suffered from gravel or stone in one district, frequently got rid of it on removing to another; and this he had been able to trace to the difference in the quality of the water. Hard water, especially that from chalky districts, caused stone; soft water cured it. He consequently recommended the free use of distilled water, not only as a menstruum for the medicine, but also for cooking purposes. Moreover, as the more pure water taken, *cæteris paribus*, the more effectual was the treatment, he gave his patients, when possible, from twenty to forty ounces of filtered rain or distilled water in the twenty-four hours; and where they objected to its unpalatability, a squeeze of lemon or a pinch of salt was added to it. Hard water must in all cases be avoided. The only substantial benefit derived from mineral waters was, he believed, that the medicine was there given in a very dilute form. In mineral waters the relative proportions of their ingredients were not regulated according to the age, constitution, state of health, and other special requirements of the patient. As regarded the benefit of mineral waters in the uric acid diathesis, he pointed out that, contrary to some recent published opinions, it was due chiefly to the alkaline salts they contained. The writer concluded by saying that the chief obstacle to our success with chemical therapeutics in the treatment of calculi lay in the imperfect knowledge of physiology and chemistry possessed by practical men, who almost invariably failed in their endeavours to combine science with empiricism.—*Proceedings Brit. Med. Assoc.* in *Brit. Med. Journal*, Aug. 30, 1873.

27. *Elephantiasis Arabum treated by Tincture of Iodine Internally and Externally.*—Dr. OLAVIDE, at a meeting of the Academy of Medicine of Madrid (Dec. 12), presented two patients, the subjects of elephantiasis Arabum, whom he had treated by tincture of iodine used both internally and externally. The first patient was a man whose parents had been similarly affected. When he came under Dr. Olavide's care, the circumference of his leg was seventy centimètres; when he was presented to the society, it was scarcely fifteen. The treatment consisted in the external application of tincture of iodine by means of compresses, and the internal administration of the same remedy, commencing with doses of six drops, and gradually increasing the quantity till it reached a drachm. In a fortnight after commencing this treatment, the circumference of the leg had diminished by one-half. The desquamation which took place was aided by the inunction of glycerole of starch. Finally, compression from below upwards was employed. The patient, when the report was made, had been two months under treatment. The only symptoms remaining were vitiligo of the thigh and slight infarction of the dermis.

The second case was one in which the circumference of the leg was sixty-eight centimètres. The same medicine was employed, also with a favourable result. The patient had a slight erysipelatous eruption on two occasions during the treatment, but this proved to be of little consequence.—*London Medical Record*, May 14, 1873, from *El Siglo Medico*, March 9, 1873.

SURGICAL PATHOLOGY AND THERAPEUTICS AND OPERATIVE SURGERY.

28. *Researches on Pyæmia.*—Dr. BIRCH-HIRSCHFELD, on examining daily the pus coming from a wound, found that, with the ushering in of the first symptoms of pyæmia, the pus also showed a corresponding change, consisting in the presence of micrococci, either in pairs, strings, or colonies (the latter especially when pyæmia was far advanced or rapid in its course), and in an altered appearance of the pus-corpuscles, which were finely granular, of less definite outline and lustre, and which showed their nuclei very distinctly without the addition of any reagent.

The *blood* of such pyæmic patients contained similar micrococci, and its white corpuscles had undergone a change very similar to that of the pus-corpuscles. Sometimes the pus of a pyæmic patient would contain, besides these, a quantity of the *bacterium termo* or *bacterium lineola*, which are the common bacteria of most putrescent matter; while micrococcus is, according to Cohn, Clebs, and Hirschfeld, not to be considered the ferment of putrefaction.

Healthy pus coming from a healthy wound or from a simple abscess showed no micrococci and no altered pus-corpuscles, while putrescent pus (either after exposure to air or coming from an unhealthy or gangrenous wound) contained only the bacteria (termo, lineola, and bacillus) due to putrefaction.

The difference between pyæmic and putrescent pus was now further shown by inoculations on rabbits. Healthy pus, injected subcutaneously into a rabbit, gave rise only to a local abscess, without any further disturbances. Putrescent pus gave the symptoms of septicæmia, as described by Bergmann, Sanderson, and others—larger quantities only being fatal, and the fever appearing almost immediately after injection, showing the sepsis curve of Bergmann very well; while pus from a pyæmic patient, similarly introduced into a rabbit, gave rise to a different course of symptoms. The animal remained well for five or six days; and this period was followed by one of high and intermittent fever, diarrhœa, emaciation, and eventually and almost invariably by death from the sixteenth to the twenty-fourth day. Pus, blood, and the metastatic changes in such rabbits, showed again all the distinctive pyæmic properties described.

The importance of these researches, which not only show us the important part which the micrococci play in the production of pyæmia, but which also

define pyæmia as quite distinct from septicæmia (in opposition to the researches of Tiegel, Klebs, and Eberth), is not to be underrated; but a repetition and further extension of them would be highly desirable. Dr. Birch-Hirschfeld examined the different morbid products without any further reagents.—*British Med. Journ.*, June 21, 1873.

29. *Traumatic Herpes.*—According to M. Verneuil, the nerve lesion capable of giving rise to vesicular eruptions having the character of herpes or zona, is probably a neuritis, which may be spontaneous, or consecutive to an injury, a wound, contusion, compression, etc. Hence surgeons should count herpes among the complications which may present themselves in the course of treatment of injury or an operation; they must, in other words, admit a "traumatic herpes." Recognizing traumatism as a very general pathogenic cause, it is easy to understand that it may give rise to herpes as well as to erysipelas, tetanus, or any other accident of wounds; it remains to investigate the conditions under which this cutaneous manifestation may show itself. M. Verneuil endeavours to discover these conditions by the examination of a short series of cases. I. A case of fracture of the base of the skull; lesion of several motor nerves; zona of the face. II. A case of amputation of a finger; neuralgia of the stump; herpes of the stump and of the lips. III. White swelling of the knee; fruitless efforts at conservation; very violent pains; amputation of the thigh; divers nervous accidents; herpetic eruption of the stump. IV. Hydrocele, double puncture, inflammation of the tunica vaginalis; herpes of the thigh; death. V. Division of the soft palate (for removal of polypus); guttural and labial herpes. VI. Extirpation of the breast, labial and thoracic herpes; diphtheroid aspect of the wound; cure. After carefully analyzing these and other cases, Verneuil concludes that herpes may show itself during the evolution of an injury, as an independent intercurrent affection; but that it may certainly also arise from that wound, and be really of traumatic origin. Three forms may be distinguished—peripheral herpes, contiguous herpes, distant herpes. It may show itself during the work of reparation—precocious herpes, or a long time after cicatrization—delayed herpes; it may or may not be accompanied by general phenomena. It follows either on the wound of a nerve-track, or of a ganglion, or of a common wound where the ends of the nerves are alone concerned. In certain cases it may be explained by a traumatic neuritis; but in others either reflex action or blood change must be invoked. The prior hæmopathic condition of the patient seems to predispose to the development of traumatic herpes. Traumatic herpes may relapse; it may coincide with erysipelas, and simulate the vesicular variety of that disease. The development of precocious and febrile herpes is accompanied by a change in the granular membrane (which recalls what has been described under the name of diphtheria of wounds) and by a sharp but temporary hyperæsthesia of the wound. The prognosis of traumatic herpes is generally favourable except in the case of septicæmic hernia, but its gravity depends then on the general malady. Herpes at a distance is ordinarily fugacious, and does not compromise cicatrization. Peripheral herpes may be more tenacious; it follows the fate of the neuritis, of which it is only a symptom.—*London Medical Record*, July 9th, from *Gazette Médicale de Paris*, Nos. 20, 22, 23, 25, 1873.

30. *On Peculiar Modes of Transmission of Syphilis in Married Life.*—Dr. Victor de Meric, in a paper read before the Surgical Section, British Med. Assoc., passed first in review the modes in which a wife may be contaminated by her husband, and *vice versâ*; paying particular attention to those cases where no outward signs of syphilitic taint are apparent. He alluded, then, to the share of gestation in the mechanism of the contamination of the wife, observing that impregnation is not the only mode in which she may become affected with the complaint. Numerous facts had put beyond doubt the modes of transmission just alluded to; but he had met with cases where contamination had been effected in an exceptional manner. The author then related some of his exceptional cases. The first had reference to a gentleman who had been under his care several years before his marriage, and had passed through the

usual periods of syphilis. He married eighteen months after the last symptoms, and a series of healthy children were born. That father suffered now and then from impetigo, and had once very severe osteitis; but neither the wife nor children experienced any contamination. About ten years after marriage, the husband was indiscreet, and caught a chancre which subsequently became phagedenic. Considering the lesion, at first, as a mere abrasion, he took no precautions, and the result, unfortunately, was the breaking out of a fearful set of symptoms of syphilis in the wife. The author now asked whether this case did not prove that the secretion of a soft chancre, seated in a syphilitic individual, might convey the general disease; and added a few remarks as to the effects of pathological secretions from a person suffering, or having suffered from syphilis. The second case was illustrative of the great difference between occasional intimacy and the actual bonds of marriage. In this case the disease was conveyed from wife to husband, though no such accident occurred through several years of former intimacy. The third case related to a married gentleman, who caught a chancre which eventually proved indurated. The lesion was, however, so insignificant at first that no heed was taken. The wife was far advanced in pregnancy at the time, and the consequence was that fœtus and mother were contaminated. These facts would go far to prove how infectious was the chancrous erosion in its nascent state. The fourth case was of a remarkable kind, as the gentleman suffered from systemic syphilis without having ever presented a primary sore. Here the wife escaped at first, but eventually had the disease through her infected child. Mr. de Méric alluded subsequently to a few other cases, in which mothers and numerous children remained healthy, though the husbands suffered from syphilis before and after marriage. He concluded by mentioning instances where the wives of syphilitic husbands had fallen into bad health, without presenting any actual symptoms of the disease. This paper gave rise to a discussion bearing chiefly on the question as to the frequency and forms of transmission of syphilis to the offspring, and as to its transmission to offspring without affecting the mother. Mr. Gant mentioned an instance of a married patient who, after having borne healthy children, acquired syphilis from her husband, and after some time gave birth to a healthy child. A recrudescence of the disease some years afterwards was followed by the birth of another healthy child. Mr. Gant mentioned the possibility of these children exhibiting symptoms after the period of the second dentition.—*British Med. Journal*, Aug. 30, 1873.

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31. *Extensive Destruction of the Anterior Cerebral Lobes, accompanied by Aphasia.*—Dr. G. BERGHMAN describes in the third No., Vol. IV., of the *Nordiskt Mediciniskt Ark.*, the following example of this: A dragoon, æt. 29, was admitted to the Surgical Department of the Royal General Garrison Hospital on June 28th, 1872, having been kicked in the forehead by a horse two hours before. The frontal bone was broken into several pieces, the brain substance protruded from the wound, and some of it was found scattered about the scene of the accident. The patient was able to sit up in bed while the wound was being dressed, and showed no paralytic symptoms, with the exception of a right facial palsy. He was perfectly conscious, and answered all questions put to him clearly. Pulse 112, full and regular. Next day convulsive movements were observed in both upper and lower extremities, especially on the left side. The patient lay apparently quite unconscious, but yet gave clear answers to every question. Pulse 116, temp. 99.7°. The patient made water voluntarily at 8.30 A. M.; it contained no albumen. On the 30th his state was much the same. No lesion of speech. No paresis except the facial palsy. No lesion of sensation. The tongue, freely movable, did not deviate towards either side. The urine had now to be drawn off by catheter; the power of voluntary micturition, however, returned, and remained until the day of his death, the 5th of July. On this day he became comatose, with stertorous breathing, floccitatio, and convulsive movement of the extremities. The pulse, difficult to count, was about 160, and extremely small. The cerebral substance at the bottom of the wound continued inflamed and stinking. Attempts to swallow were induced by the washing of the wound. The patient died at 3.30 P. M.

A very full account of the autopsy is given. It is mentioned that on the right side of the cerebrum only those parts of the cortical substance lying close to the middle line were damaged, *i. e.*, the olfactory convolution, internal orbital convolution, and the posterior portion of the posterior orbital convolution as far as the fissure of Sylvius. But on the left the whole under surface was involved, and the inflammatory action had spread, not merely outwards and upwards to the third frontal convolution, which was altogether destroyed, softened, and discoloured, but also to the *island of Reil* on this side, which, however, did not present the same degree of discoloration and breaking up. The lateral ventricles, dilated, contained a very large quantity of clear fluid. With these and other extensive injuries of the brain-substance, especially on the left side, there was, as already stated, no aphasia. Two days before his death, indeed, the patient, when asked to what squadron he belonged, answered, "To the Sigtuna squadron," whereas he really belonged to the Upsala squadron. It is to be remarked, however, that another squadron, called the "Sigtuna squadron," actually was attached to his regiment.—*Dr. J. W. Moore's Report on Scandinavian Med. in B. and F. Med.-Chirurg. Rev.*, July, 1873.

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32. *Application of Auscultation as an Aid to the Diagnosis of Stone in the Bladder.*—Dr. Henry H. Head, Physician to the Adelaide Hospital, states (*Irish Hospital Gazette*, July 15, 1873), that he sounded a gentleman's bladder and was pretty sure that he detected a stone, but did not think the evidence absolutely conclusive, when it occurred to him to try auscultation, to see if it would assist his diagnosis. He accordingly applied one end of an India-rubber tube to the top of the catheter with which he was examining him, and the other to his ear, and at once heard, with the greatest distinctness, the instrument strike the stone. The evidence afforded was so conclusive, that there could no longer be any doubt on the subject.

He adds: since "I saw the above case, I have performed many experiments with substances of various sizes and degrees of hardness, placed in a bladder distended with water, and have never failed to discover them by the sense of hearing, which I have found much more delicate than that of touch. Even a small piece of soft chalk, not larger than a pea, can be most easily detected; the slightest touch of the catheter or sound being conveyed to the ear, when it could not be recognized by the hand.

"I feel confident this method of applying auscultation will afford most material aid to the surgeon in forming a diagnosis in doubtful cases."

The apparatus used by him consists of a small vulcanized India-rubber tube, about eighteen or twenty-four inches long, to one end of which an ivory ear-piece is attached, similar to that used for ear trumpets; and into the other end is inserted a metallic plug, with a tapering end protruding, which should be pressed tightly into the canal of the catheter; or, if a solid sound is used, the end of the tube, without the plug, may be fastened on it.

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33. *Antiseptic Treatment of Wounds.*—Prof. John Wood, in his admirable Address on Surgery before the British Medical Association at its recent meeting, remarked: "Pyæmia, septicæmia, and erysipelas are undoubtedly the greatest troubles in modern surgery." . . . "When, therefore, a system of dressing wounds is brought before us, sanctioned by worthy names and supported by the results of cases, offering a means of escaping these terrible enemies, it is our bounden duty to give it a fair and full trial.

"Such is the antiseptic system of dressing wounds originally developed by Le Maire in 1860 and 1865—in the use of coal tar, and its derivative carbolic acid, as an application to wounds. As long ago as 1815, French chemists had proved the antiseptic qualities of oil of tar. . . .

"A great impulse was given in this country to the use of carbolic acid by Professor Lister, in February, 1867, well known to the Association from the exposition of his method by that talented surgeon to the meeting at Plymouth. Since that time I have given his system, I believe, a fair trial at King's College Hospital. At the same time, and under the same conditions as far as could be obtained, I have employed the solutions of carbolic acid in oil and water, and

those of metallic salts, as well as other antiseptic substances, such as chlorozone, etc., but without the elaborate attempts to exclude the unpurified atmospheric air which Lister deems essential. . . .

"As an experimental and scientific mode of research, which may turn out to be also a converging line in Surgery, I have the highest possible respect for Professor Lister's system of treating wounds.

"Upon his theory of germs, it is consistent and simple enough; but it is as a practical method of treating open wounds, available under ordinary circumstances in hospitals and private practice, in emergencies, and on the battle-field, that it must be estimated and will ultimately take its place; and it is with that view that I have put it, as far as possible, to the test. I began it at a time when the hospital was in a good hygienic condition, and the cases for that time did admirably. I had some cases quite equal to any described by Professor Lister himself. I, at the same time, tried the application of dry lint, without any moisture whatever, to the wound, and in many cases, especially in breast cases, the results were also perfect. In one breast case union by adhesion occurred throughout the wound. I also tried the application of the chloride of zinc solution in the manner originated by Mr. De Morgan, and very good results ensued, viz., healing with the formation of little or no pus. After about six months, there came into the hospital a very unfavourable change, and, from inquiries made at the time, I concluded that a similar condition prevailed in most or all the London hospitals. Erysipelas and its concomitant pyæmia began to show themselves, the former not springing up in the hospital itself, but imported with patients. The wounds now began to suppurate more, primary healing was less common, and the erysipelatous blush appeared with blameworthy impartiality in cases treated in all kinds of ways, and almost as impartially on my own antiseptic side of the hospital as on my colleague Sir William Fergusson's non-antiseptic side. But this I feel bound to say, that there was little or no putrefaction, as evinced by the odour, in any of my cases, which my eminent colleague shrewdly attributed to the carbolic smell overpowering all others. Upon this point, however, I must say I did not agree with him. I had one case of amputation of the thigh for a tumour of the lower end of the femur, in a man about 60. I treated it by Lister's method, carefully carried out, and, from beginning to end, there was very little discharge and no putrid or offensive smell whatever; but the wound did not heal, the end of the bone remained unadherent and devoid of granulations, and the man lingered for two months in a declining and emaciated state, and finally succumbed to chronic pyæmia with secondary abscesses in various parts. The occurrence of many other cases similar in character to this has convinced me that the agencies, whatever they are, in pyæmia, operate in the general system, or, if through the atmosphere, in other channels besides the wounded part, as in cases of pyæmic poisoning from deep internal glandular pus deposits and in other acute and chronic tubercular affections.

"Some time afterwards I had a case of compound fracture of the tibia and fibula, with a limited aperture in the skin, in a man nearly 70 years of age. I put it up carefully in Lister's method, carbolic spray, prepared gauze and jaconet, complete. On dressing it several days afterwards, suppuration was found to have occurred, and the pus had accumulated considerably in the dressings. The treatment was continued, and kept the wound free from all unpleasantness, but still the amount of suppuration was very considerable. There was burrowing of pus along the muscles and bones, and a total want of union. In this case I was ultimately obliged to amputate below the knee. The amputation wound was also treated antiseptically, but still the amount of pus was considerable, and although from the man's age and reduced condition, the progress of healing by granulation was slow, the case did ultimately exceedingly well, and made an excellent stump.

"In some cases of psoas abscess treated by Lister's method we had marked success so long as the hospital was healthy. When erysipelas and pyæmia appeared, however, we had others in which the pus in the abscess became putrid and offensive after the first evacuation under the spray and with all the precautions, and I was obliged to make free openings and introduce drainage tubes

through which the abscess could be washed out thoroughly with antiseptic. Such cases show that we cannot without danger depart, in the generality of wounds, from the old rule of providing a free exit for all purulent and offensive discharges, and, for the want of this, the exclusion of air is not a sufficient compensation. I cannot, consequently, approve of the plans originated by Baron Larrey and followed by Gosselin, and, more lately, by J. Guerin and Maisonneuve, of "occlusion pneumatique" the amount of resemblance to which, in Lister's method, constitutes, it seems to me, some part of its deficiencies. To a great extent, this objection also exists to the plan followed during the second siege of Paris by Alphonse Guerin, of using thick investments of compressed cotton-wool after washing the wound with alcohol, and then leaving it, without disturbance or removal of the deeper layers, for periods varying from a fortnight to two months, or even more. This plan for keeping from the wound injurious atmospheric influences seems to have been deduced from Professor Tyndall's experiments upon the purifying results of the cotton filter of Pasteur. It was shown by Hervey that, as used by Guerin, it neither prevented putrefaction and fetor in the wound, nor the formation of abundance of microzoa therein. Here again, we have instances of the propriety of that regular and systematic inspection of wounds which the practice of hermetically sealing them up prevents us from obtaining.

"In clean incised wounds, where the formation of pus is not likely to occur, as in some plastic operations, the hermetically-sealing plan will no doubt maintain its position in general use in its most useful form of collodion. But, when suppuration ensues, it must be got rid of. Its absorption by dry earth, as advocated by Dr. A. Hewson of Pennsylvania, has the disadvantage of being dirty and offensive to the patients, and of obscuring by its colour the natural appearance of the wound when in contact with it, but as a substitute when better absorbents cannot be obtained, it seems to be of some value. Much the same may be said of charcoal. When this substance is combined with coal-tar, however, as in the way advocated by Dr. Beau, it would seem that a great part of the antiseptic vapour would be absorbed by the charcoal, and the two remedies to some extent thus neutralize each other."—*Brit. Med. Journ.*, Aug. 9, 1873.

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34. *Isolation and Treatment of Wounds.*—Mr. Geo. W. Callender described to the Surgical Section, British Med. Assoc., a plan of treatment which he had followed for several years in St. Bartholomew's Hospital, and of which the results were at least as satisfactory as those following the employment of the antiseptic method, while it was much more simple. In 199 cases treated in this way there had been six deaths; and in 28 cases of compound fracture, and 33 of amputation (including 14 of the thigh), there had been no deaths. The author insisted on the removal of foreign bodies, and expressed his objection to ligatures, as being in fact foreign substances. Instead of tying arteries he used torsion. After all bleeding had stopped the wound was washed with carbolic acid (1 in 20 of water), closed with silver sutures, and fitted with a drainage-tube (a suitable form of which Mr. Callender had had made). After this, layers of lint dipped in carbolized oil (1 in 12 of olive oil) were laid over the line of incision or over the laceration; and over these a quantity of cotton-wool for warmth and protection. After the dressing the wound was placed in such a position as to secure absolute rest. After the first day, the drainage-tube was generally removed, and the dressings were applied as before. No special provision was made for excluding the air. As far as practicable each case was placed between patients free from wound or discharge, and the wound was cleaned by means of a camel-hair brush, with a solution of carbolic acid in five parts of spirits of wine. Mr. Callender remarked that in this plan antiseptic treatment was used in a limited way, and that the results which he brought forward showed that, with the exercise of proper care and supervision, patients did as well in a large hospital as anywhere else. Sir John Rose Cormack (Paris) said that he had, during the two sieges of Paris, treated a great variety of the worst description of shot and shell wounds, and he had seen similar cases treated contemporaneously by others, and his firm conviction was, that the success was not so much with the skilful operator as with the man who patiently and with

scrupulous care conducted his dressings, and attended to the hygiene of his patients. Mr. Lister's system was not adopted in the American ambulance, nor in either of the hospitals of which he (Sir John Cormack) had charge; and yet in all these the success was very remarkable. The system which Sir John Cormack adopted (varying it according to circumstances) was to tide over the period of shock by large opiates; to use in all the dressings abundance of *étoupe goudronée* or oakum, which, from its antiseptic properties and its power of absorbing the discharges, as well as its elasticity, was used universally in the American and English ambulances. He gently washed the wounds and the surrounding parts at each dressing with creasote water, to remove adherent noxious discharges; and the crevices were carefully cleansed by injecting the same fluid. When necessary and at all possible, incisions were made, and drainage-tubes were used to prevent the accumulation of discharges in crypts or pouches. The very simple and effectual method suggested by Mr. Callender, of lightly brushing out the cavities with a camel-hair pencil, would no doubt have answered as well as, and in some cases perhaps even better than, the syringe. He attributed much of Mr. Lister's success to the general medical and hygienic treatment which that gentleman strenuously carried out, rather than to the niceties and complexities of his special system. In support of his views, Sir John referred to some of his cases of lacerated wounds and amputations, in which, he believed, recovery was mainly attributable to the system which he briefly described, and in some instances, to the additional precaution of changing the personal and bed linen once, and sometimes even more frequently, in the course of the day. This had been done in one case where the patient had seventeen lacerated wounds, and made a good recovery. An additional precaution was generally taken—to wit, having the patients carried out on stretchers to the free breeze of the garden, whenever the weather permitted, so that their bedding and the wards might be cleaned. In addition to this, the floors and beds were regularly watered with creasote water several times a day. Mr. Gant (London) was of the same opinion with regard to Mr. Lister's plan. Mr. Green (Bristol) had found that many years of large hospital experience only wedded him the more firmly to the doctrines long since taught him by Mr. Lawrence—namely, extreme simplicity in the treatment of wounds, and above all, a free outlet for discharges. Mr. Cresswell (Merthyr Tydfil) and Mr. Hemingway (Dewsbury) also spoke. Mr. Lund (Manchester) said that Mr. Callender's method was really antiseptic, while its simplicity was to be admired. Mr. Hey (Leeds) had given Mr. Lister's plan a fair and unprejudiced trial, but repeated experience of it had convinced him that even when carried out carefully by Mr. Lister's own pupils, the method showed no superiority over a simple plan of treatment such as that employed by Mr. Callender. He had even seen union delayed in wounds by reason, as it seemed, of the employment of the more elaborate antiseptic dressings, although in other cases it answered all expectations. Mr. Callender, in reply, pointed out that his plan involved absolutely no precautions against the admission of air, and could not, therefore, be considered as a proof of the superiority of Mr. Lister's method of "antiseptic" treatment.—*British Med. Journal*, Aug. 30, 1873.

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35. *Abdominal Aneurism successfully treated by Proximal Pressure on the Aorta.*—Dr. EDWARD HEADLAM GREENHOW reported to the Royal Medical and Chirurgical Society, May 27, a case of this. In the year 1864 Dr. Wm. Murray communicated a case of the same, successfully treated by the same plan. The patient remained well for six years, and then died of a second aneurism. It was found that the remains of the original aneurism consisted merely of a fibrous mass, and that complete collateral circulation had been established by the enlargement of vessels both on the outside and inside of the abdominal cavity. Last year a similar case, cured by the same means, was communicated to the Society by Dr. Moxon and Mr. Durham, of Guy's Hospital. These are the only two such cases which have as yet been fully recorded; and the author trusted that the report of a third case would not be considered superfluous, more especially as in this latter some of the results of the compression of the aorta appeared to have an interest apart from

that belonging to the cure of the aneurism. Christopher F., aged 28, warder in the House of Correction at Kendal, was admitted into the Middlesex Hospital, under Dr. Greenhow's care, on May 20, 1872. He was a strong-looking man, and his health had been good until December, 1868, when he was on board H.M.S. *Princess Charlotte* as an able-bodied seaman. Whilst drawing water from alongside he suddenly felt something give way in his abdomen. Was soon after invalided, and on his return home he obtained employment as warder. In December, 1871, he again began to suffer and lose strength. On admission, he complained of pain in the abdomen and loins, shooting downwards to the groins and thighs. A somewhat globular pulsating tumour, about the size of a large orange, was found in the abdomen, immediately above the umbilicus. It extended more to the right than to the left of the median line, and beat forcibly with an expanding lateral as well as with a forward impulse. Firm pressure over the aorta above the tumour, when the patient was sitting up, stopped the pulsation for the time being. The medical staff of the hospital having agreed with the author as to the nature of the tumour and the means to be attempted for its cure, Mr. Hulke undertook to apply the tourniquet. May 25: Chloroform having been administered, Lister's tourniquet was screwed down between the tumour and the xiphoid cartilage until pulsation ceased both in the tumour itself and in the femoral arteries. On account of vomiting the pressure was withdrawn after three-quarters of an hour. The impulse remained as before, but the tumour felt rather more solid. 27th: When the patient was thoroughly under the influence of chloroform, Mr. Hulke applied the tourniquet with the same effect as before, and with two brief intermissions the pressure was maintained during four hours. After some time there appeared marked lividity of the lower extremities, which, as well as the lower half of the abdomen, became quite cold. Temperature taken between the toes was 90°. Sphygmographic tracings of the radial pulse showed increased arterial tension. The breathing became very shallow and gasping. Pulse from 100 to 120, respiration from 44 to 56 per minute. The removal of the pressure was immediately followed by the subsidence of all these symptoms. The pulsation in the tumour was decreased, the forward impulse being much less forcible and the lateral expansion only slight. For several days the patient suffered much from vomiting, the vomit containing altered blood, and from pain, numbness, and coldness in the lower extremities, more particularly in the right limb, which gradually disappeared as the circulation became re-established. The impulse in the aneurism very greatly decreased, until on June 10 it could scarcely be felt, and the patient was allowed to sit up for a short time. June 25: The pulsation in the tumour having decidedly increased again in force during the previous week, the tourniquet was once more applied, so as thoroughly to compress the aorta, and the pressure was maintained for three hours almost continuously. The pulse and breathing showed the same characters as during the former operation, and there was the same coldness of the lower extremities and of the right more than the left foot. When the tourniquet was removed there was forward pulsation of the tumour, but no lateral expansion, and the tumour felt firmer and more solid. During several days the vomiting and coldness of the extremities continued as before. The urine was albuminous for two days. The impulse in the aneurism continued to diminish until July 1, when it could not be seen, and scarcely felt. On July 14 the patient was well enough to be discharged home to Kendal. September 20: In accordance with Dr. Greenhow's request, the man returned to show himself. No pulsation was found in the seat of the aneurism, nor was there any distinct tumour remaining; but above the umbilicus, to the right of the median line, was an undefined somewhat movable hardness. No pulsation could be detected in the aorta from an inch above the umbilicus downwards, nor in the femoral, popliteal, or anterior tibial arteries. Mr. Noble, of Kendal, who sent the patient to the hospital, wrote to Dr. Greenhow quite recently to say that the man was in perfect health. It would appear certain from this case, taken in conjunction with Dr. Moxon's and Mr. Durham's, that the process of cure by coagulation of blood in the sac of the aneurism is not necessarily a rapid process, as it was in Dr. Murray's

case, but may last during many days, and sometimes even for weeks. The direct effects of the pressure upon the pulse and respiration were very remarkable, and not less so the secondary effects of the disturbed circulation on the stomach and kidneys, producing the hæmatemesis and albuminuria which followed the operations. The occurrence of such symptoms would seem to suggest that the intense arterial distension caused by the treatment might be attended by serious danger to persons suffering from any kind of organic disease, especially degenerative disease of the arteries.

Mr. HOLMES did not think that the operation was free from danger; in some cases it had been followed by death. Mechanical lesions of the gravest kind were often produced. He did not think the treatment should be employed in all cases. If an aneurism was rapidly enlarging it might be resorted to; but it was beyond justifiable surgery to do so if milder means would do. There was distinct evidence of injury from the violent pressure on veins. In three cases death had occurred. Then the prolonged application of chloroform was in itself a source of great danger. He thought a surgeon ought to consider if abdominal aneurism could not be cured by milder means. Low diet and rest often ameliorated. In other cases it was amenable to slow pressure, as by a pad or finger for a portion of the day, and without the danger attending more forcible pressure. The latter was more efficient as well as more dangerous. Though the three successful cases had been reported, yet there were others which had been unsuccessful. As to the coagulation of the blood, he thought there were two ways in which it might occur—firstly, gradually, as shown in Mr. Durham's and Dr. Moxon's case, in one month; secondly, by the impaction of a clot in the artery, as in Dr. Murray's case.—*Medical Times and Gazette*, July 19, 1873.

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36. *Treatment of Axillary Aneurism.*—Prof. T. HOLMES, in one of his admirable lectures on Aneurism now in course of delivery before the Royal College of Surgeons of England, laid down the following propositions which he thinks are established by the facts which he brought forward in reference to axillary aneurism.

1. That there are a great number of these aneurisms, both traumatic and spontaneous, which are amenable to gradual intermitting pressure, when carefully applied to the artery above the tumour.

2. That in cases where this is not possible, from the pain which the patient experiences on pressure, the application of rapid total compression under anæsthesia may effect a cure.

3. That the ligature of the subclavian artery is so dangerous an operation, both from its own risks and from the proximity of the sac, that it ought to be restricted to cases where pressure has failed, and to those in which, from the size and rapid growth of the axillary tumour, the surgeon thinks pressure unadvisable.

4. That the old operation is to be preferred to the ligature of the subclavian in cases of ruptured artery, and that it may be practised in cases where, from the elevation of the shoulder or from the extent of the tumour, the surgeon would find it difficult to tie the subclavian, or fears in doing so to injure the sac; but that the anatomical relations of axillary aneurism render this a peculiarly hazardous proceeding, and the surgeon should always be prepared to amputate if necessary.

5. That in very large axillary aneurisms, if any treatment be adopted, the arm should be amputated at the joint after ligature of the subclavian.—*Med. Times and Gaz.*, Aug. 23, 1873.

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37. *Vertebral Aneurism.*—Mr. T. HOLMES, in one of his recent lectures on the Surgical Treatment of Aneurism (*Lancet*, July 26, 1873), presented the following conclusions to which present experience points on the subject of vertebral aneurism:—

1. A traumatic aneurism may be taken to be vertebral when it is situated in the course of that vessel, and when its pulsations are not commanded by compression of the lower part of the common carotid.

2. When a traumatic aneurism is situated as above, and its pulsations are commanded, however completely, by pressure on the common carotid low in the neck, it ought not to be treated as being carotid, or as affecting a branch of the carotid, unless it is clearly proved that its pulsations are stopped by pressure applied above the level at which the vertebral ceases to be compressible —*i. e.*, above Chassaignac's "carotid tubercle."

3. An aneurism diagnosed as vertebral may be treated by compression (gradual or rapid, as the case demands) of the root of the vertebral artery in the neck, if this is found feasible.

4. If indirect compression will not stop the pulsation, or if it cannot be borne, the tumour should be subjected to direct compression and refrigeration, to which internal remedies may be added; and possibly the subcutaneous injection of ergotine may be of use.

5. If these means fail, and the tumour appears likely to burst, or if it has burst, the sac should be opened with all due precaution, and an attempt made to tie or plug the wounded artery.

6. A wound known or suspected to be of the vertebral artery should be treated either by direct pressure or by ligature of the vessel in the wound.

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38. *Results of Excision of the Head of the Femur.*—In the third sitting of the second conference of the Congress of German Surgeons (*Berliner Klinische Wochenschrift*, May 31, 1873), Herr Langenbeck presented a case of resection of the head of the femur, which was interesting because it had been performed in the presence of many members of the congress at its meeting in the previous year, and because the suppuration in the hip-joint had been induced by an attack of gonorrhœa, followed by suppurating bubo. The patient, aged twenty-two, had contracted gonorrhœa in April, 1870, having previously enjoyed perfect health. A bubo appeared which suppurated, was opened, and then healed, after an interval of fourteen days. The patient returned to his work, but remarked in Oct. 1871, slight tenderness in the groin, an abscess formed, which was opened, and finally the hip-joint became involved. In Jan. 1872, he was received into the Jewish hospital with evidence of suppuration in the joint, extension was applied which diminished the pain, but the suppuration increased, and hectic followed. In April an examination under chloroform was made; the joint was found in a carious condition, and the partially absorbed head removed through a longitudinal incision. Almost no blood was lost. On account of a large bed-sore on the sacrum, the after-treatment was conducted with the patient lying on his face. At the end of June the operation-wound and bed-sore had both healed, and the man was allowed to go about with an apparatus. In Dec. 1872, the instrument was laid aside, and the patient was able to move about with a high heel. Soon he could walk for hours at a time without difficulty. The shortening amounted to four centimetres. Around the acetabulum was a large mass of callus with which the femur seemed to articulate. The motions in the joint were impaired, but still considerable.

In the discussion which followed the presentation of the patient, Professor Huter said he had thrice had occasion to examine the healing process of an excised hip on the dead body. In both cases recovery had reached a certain point; the children had left their bed, and could go about to some extent, with, however, fistulous openings, which remained unclosed; death occurred from amyloid degeneration of the viscera. In both cases the trochanter minor rested against the acetabulum. In other cases in which complete cure occurred, he believed the same relation existed, the usefulness of the limb was very encouraging. Some months ago he removed the greater part of the great trochanter, in a case of resection of the hip, and four weeks after the operation the patient was not only able to rise out of bed, but to rest on the limb in walking. In another case, observed some nine days after the operation, the trochanter minor seemed to rest against the acetabulum, and the patient, sixteen years old, could walk a German mile on foot with no assistance but a stick.

Professor Volkmann considered it of the last importance to prevent adduction of the limb after resection, as the end of the resected bone had no point of resistance, and was dragged up more and more on to the crest of the ilium.

He therefore, after the first week, strongly abducts the limb, so that the end of the resected bone rests in the acetabulum He does not recommend it at an earlier period, as the pressure of the bone surfaces against each other might be then injurious, and their healing retarded. During the early period he uses extension or gypsum bandages. Professor Volkmann explained the occurrence of the suppuration in Langenbeck's case, by the pus passing into the bursa of the psoas and iliacus muscles, and so into the joint.

LANGENBECK stated that he had, during the previous year, observed two other cases of secondary suppuration of the hip-joint after bubo. The first patient came to hospital with extensive suppuration round the joint, and died from exhaustion. The joint was completely destroyed; the capsule had given way in several places, so it was impossible to tell at which point the suppuration had originated, or entered the articulation. The last case was still under treatment; the symptoms pointed clearly to pus in the joint. Langenbeck thought it possible that the inflammation might have travelled through the iliac bursa into the joint, but considered it more probable that the lymphatic vessels were the means of communication. That there is a close relation between the lymphatics of the joint and of the groin, seems to be proved by the frequent occurrence of swelling of the inguinal glands, as a consequence of recent coxitis.

Professor LUCKE said that Langenbeck's account reminded him of a patient with deep abscesses after bubo in the groin stretching up behind Poupart's ligament. Suddenly, symptoms of inflammation of the hip set in, with septicæmia; the patient died. The examination showed that the hip-joint was filled with pus, and its capsule perforated.

Speaking of Volkmann's suggestion to abduct the limb after resection of the hip, and in that way maintain the length of the extremity, Professor BILLROTH observed that this method was usually successful, as he could testify from his own experience in a case of anchylosis with actual shortening. After breaking down the anchylosis, he extended and fixed the limb in the strongly abducted position; recovery took place in a gypsum bandage, and the result was especially favourable.—*London Med. Record*, July 16, 1873.

39. *Treatment of Effusions into the Knee-joint by Aspiration.*—M. DESPRÈS, in the name of a committee consisting of MM. Veneuil, Cruveilhier, and himself, made a report to the Surgical Society of Paris (May 14, 1873), on the memoir of M. Dieulafoy, on the above subject. M. Desprès stated that the memoir was founded on twenty-two cases, in which sixty-five punctures had been made without ill effect, for serous, sero-purulent, and purulent effusions. According to the Committee if the duration of the treatment be considered, the new method generally does not effect a more speedy cure than the ordinary treatment. In some cases, however, the rapidity of the cure was remarkable. The mean quantity of liquid abstracted by aspiration was in traumatic hydrarthroses 60 grammes, in rheumatic hydrarthroses 70 grammes, in purulent effusions 40 grammes. In several of the patients the effusion has been reproduced and the puncture repeated three or four times.

M. Desprès declares that in traumatic hydrarthroses, the old method gives as good results as the aspiratory method. In rheumatic hydrarthroses the aspiration is useless. In hemorrhagic arthritis blisters should be preferably employed. In chronic hydrarthroses which resist ordinary treatment, aspiration may be usefully employed. As to sanguineous articular effusions, in which M. Dieulafoy has not applied his method, it would be dangerous to puncture them.

In the discussion which followed the reading of this report, and in which MM. Blot, Dubreuil, Verneuil, Demarquay, Dolbeau, Panas, Marjolin, Duplay, See, Tillaux, and Guyon took part, the conclusions of the committee were generally approved. Puncture of the knee was considered as a very serious operation and might even be followed by fatal results, of which M. Debreuil related an instance.

In the opinion of nearly all the members who spoke, the ordinary method should be preferred to the one proposed by M. Dieulafoy. It cures as effectually and without danger. The acute pains which accompany acute hydrarthroses are

more effectually combated, according to M. Verneuil, by the immobilization of the limb, than by aspiratory puncture, for if this operation is followed by instantaneous cessation of the pain it reappears, in a few hours as intense as previously.—*L'Union Médicale*, 23 Aug. 1873.

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40. *Resection of the Ankle-joint and Os Calcis.*—In an inaugural dissertation (Greifswald, 1872) Dr. Albert Keller gives an historical account of resections in general, and also refers to Read's case of so-called excision of the ankle after Fontenoy, which he characterizes as a mere extraction of fragments of bones after gunshot injury to the joint.

Langenbeck, since 1850, performed the operation four times in his private practice, in all cases carefully preserving the periosteum. Very complete reproduction of bone ensued, and in two cases the joint recovered perfect motion. Neudörfer, in the Schleswig-Holstein war, operated once, and Langenbeck five times. In the Bohemian and the Franco-Prussian wars, the author asserts, excision of the ankle-joint was frequently performed, and with such successful results that the operation may now be considered as fully accepted both in war and peace surgery.

The author refers to two successful cases, one performed by Mr. Holmes, and the other, in 1857, by Dr. Murray, of Belfast.

It is unnecessary to detail the indications which the author, following his teacher, Professor Hueter, gives for the performance of the operation; nor the operative procedure itself, which is by the lateral L-shaped incisions, embracing the malleoli, as originally recommended by Moreau *père*.

The after-treatment should commence on the operating table, by the careful cleansing of the wound, and passing, after suturing the upper portions, a drainage-tube from side to side of the wound cavity.

The foot should then be held slightly extended, so that the cylinder of periosteum is put upon the stretch, and a gypsum bandage is to be forthwith applied.

The reproduction of bone is rapid, so that by the end of eight days a firm case of periosteum, with newly deposited bone, is often formed. Sometimes trouble is experienced from the excessive amount of new osseous tissue which is formed.—*London Med. Record*, July 16, 1873.

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41. *Treatment of certain Forms of Bronchocele by Injections of Iodine.*—Dr. Morell Mackenzie stated that in a former paper he had described in detail the various methods applicable to the several kinds of enlargement of the thyroid gland. In discussing the treatment of fibrous bronchocele in the article referred to, he did not do justice to the method recently introduced by Prof. Lücke, of Berne. A larger experience, made under more favourable conditions, had convinced him that the treatment of certain forms of bronchocele by the subcutaneous injection of iodine into the substance of the enlarged gland, was of the greatest value. The following was the plan of treatment, which, in accordance with Dr. Lücke's recommendation, the author had employed: Thirty drops of the officinal tincture of iodine were injected into the substance of the gland once a week for the first two or three weeks, and afterwards once a fortnight, as long as was necessary. It was well to give iodide of potassium internally, at the same time; but no medicine was given to any of the patients whose cases were now related. The advantages of the treatment were, that it did not cause any constitutional disturbance or local irritation (suppuration). In this respect, it was preferable to treatment by setons and caustic darts. The only disadvantage of the method was its slowness; this, however, could scarcely be considered a drawback, except when the enlarged gland caused urgent dyspnœa. The cases which were briefly related had been taken indiscriminately as they presented themselves, or were found in the case-book of the Throat Hospital on July 24th. Of the sixteen cases, fourteen were fibrous, and two adenoid, or soft. Fourteen patients were females and two males. Eleven were completely cured, in four a considerable reduction resulted, and one case completely resisted treatment. In one case the neck was reduced by 3¾ inches in less than six months; in two cases a reduction of

2½ inches took place. The duration of treatment varied from one to eight months, the average being four months. The author concluded by remarking that the treatment of cystic cases by injections of iron, as previously recommended by him, was, of course, much more rapid, and therefore more striking; but the fibrous cases were undoubtedly the most difficult to treat of those varieties met with in practice. Dr. Mackenzie added that suppuration had not occurred in any case where the injection had been made into the gland itself. The failures of the treatment were 5 per cent. Mr. Meade's treatment by division of the fascia in the central line, where symptoms of dyspnœa indicated mechanical pressure, had been found successful in alleviating this.—*Proc. Brit. Med. Ass.*, in *Brit. Med. Journ.*, Aug. 30, 1873.

42. *Nine Cases of Colotomy in Females*, by CHRISTOPHER HEATH.—Two operations were undertaken for cancer of the rectum, causing obstruction, which had existed many days; both patients died. Three operations were performed for scirrhus in an earlier stage, before obstruction had occurred; and of these one died and two recovered—one of the latter dying seven months afterwards, and the other being now alive and well, seven months after the operation. Two operations were performed for syphilitic ulceration and stricture; both recovered, and are alive now. One operation was performed, as a last resource, in a patient worn out with extensive fistula and ulceration (probably syphilitic) before she applied for relief, and proved fatal. The operation was performed for the relief of a recto-vesical fistula, and was perfectly successful. The result therefrom was four deaths and five immediate recoveries. Mr. Heath appended some observations on the operation and its results, urging its earlier adoption in cases of obstruction and intractable disease, and showing the slight risk to the patient the operation *per se* inflicted.—*Proc. Brit. Med. Ass*, in *Brit. Med. Journ.*, Aug. 30, 1873.

43. *Radical Cure of Rupture.*—Prof. JOHN WOOD, in his Address on Surgery, remarked, "I have long thought that we might, in favourable cases, safely do more than we now attempt, to prevent a return of the protrusion after the operation for the relief of strangulation. After performing operations for the radical cure more than two hundred times, I had grounds for the belief (which other operations on the peritoneum also favoured) that in a healthy subject, the peritoneum might be dealt with as freely and as safely as any other tissue; and also, that the chances of bad results from peritonitis would depend upon the injury sustained by the bowel in strangulation, rather than upon any way of dealing with the peritoneal sac and parietes after the strangulation had been relieved, provided that due drainage be secured. In cases where the bowel and omentum are congested only, and most likely to recover when placed into their natural cavity, especially in young and healthy subjects, I concluded that the attempt would be justified, and would probably be successful. If so, the advantage of preventing a lifelong trouble by the operation which relieves strangulation is obvious."

In answer to the objection made to his operation that evidence is wanting as to the permanency of the cure, he states "out of 188, most of them unselected cases of inguinal hernia, of which I have notes (including 7 females and 4 cases of double rupture, both operated on), in 107 cases the results are pretty perfectly known. I find that 51 of these were more or less unsuccessful; 42 returned in the first year after operation—that is, the patient could not do without wearing a truss after the first year. Of these, by far the greater number were so much improved that they were made comfortable by a truss, which was not the case in most instances before the operation. Some, but not many, were as bad as before the operation. Mr. Kingdon, of the City of London Truss Society, has kindly forwarded to me the names of twelve of those who had applied to that institution for the supply of a truss after an operation at my hands.

"56 out of the 107 were cases which continued to be successful subsequently to a year after the operation, as ascertained either by direct examination by myself, other surgeons, or satisfactory to the patient himself, and either wear-

ing no truss at all, or only occasionally, as a precaution, after the first year from the operation. Of these—7 were noted from thirteen to twenty-one months after the operation: 7 two years; 7 three years; 7 from four to six years; 7 from six to eight years; and 4 from nine to eleven years after operation. Reckoning operations on both sides and repetitions of the operations, I have done the operation more than two hundred times. Out of these, I have had three deaths; one from pyæmia, one from erysipelas, and one from peritonitis. These have been made public to the profession on more than one occasion, because I judged it right and fair that in an operation of this kind the facts should be made known as far as possible. In the last case, as shown by the *post-mortem* examination (published in the *Medical Times and Gazette* in 1866), the peritonitis was found not to have originated in the parts operated on, but in a knuckle of bowel which had been lodged in the hernial sac before the operation, while the patient was wearing a strong truss. The cases in which any signs of peritonitis were observed were not more than about twenty in the whole number. One and a half per cent. is not a high average of deaths from surgical accidents, and there are very few operations of like kind, as, for example, for the removal of deformity, the cure of prolapsus of viscera, or of hæmorrhoids, which could show more favourably either in this respect, or in respect to the somewhat severe test of the length of time in which they have been known to be without a relapse after the operation. And since 42 out of the 51 known unsuccessful cases proved to be so within the first year after operation, and most cases were examined once or more at various intervals of time after the operation, I think that, in respect to this point, we have a right to claim the probability of more and the certainty of at least as many good results for the 81 of which I have not been able to get notes after the first twelve months, as for the 107 in which I have done so. Under the age of twenty-one years the results in known cases are much more satisfactory. But of dry statistics you will think that I have given you, perhaps, more than enough.

"The determination of the question as to whether the operation for the radical cure is an appropriate alternative to a life-long wearing of a truss, and a valuable supplement to the slow and very uncertain cure by truss pressure, will continue to depend on the age, habits, circumstances, mode of life, and, to some extent, the cruel experience of trusses and wish of the patient after having the matter fairly put before him, and, perhaps nearly as much, upon the anatomical knowledge, skill, energy, and experience of the surgeon, or his disposition to that finality frame of mind to which I have alluded. In any case, whether universally or only occasionally resorted to, it forms, I think, a valuable addition to the resources of surgery.—*Brit. Med. Journ.*, Aug. 9, 1873.

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44. *Case of Retention, followed by Suppression of Urine, lasting seven days; Recovery.*—Dr. S. T. Knaggs relates (*Dublin Journ. Med. Sci.*, July, 1873) a case of this and remarks: "This case is remarkable, from the fact that the patient, a broken-down, debilitated subject, survived seven days without passing a drop of water from his urinary bladder, and ultimately recovered. It possesses a further interest, from the fact that nature came to the rescue of the physician, and indicated a rational procedure in the treatment. The gastro-intestinal tract and the skin took on vicarious action, as was indicated by the copious watery vomitings and profuse perspirations exhaling a peculiar urinous odour. These organs (stomach, intestines, and skin) voluntarily gave their assistance to the kidneys, and performed their functions, while their (the kidneys') portals were stopped, and thus relieved the blood of urea and such effete products as would have accumulated in the system, and have literally poisoned the patient.

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45. *Onychia Maligna.*—In our number for April last, page 551, we noticed the successful treatment of this disease by Prof. Vanzetti by the local application of nitrate of lead. Dr. Wm. MacCormac, in a paper read before the Surgical Section, British Medical Association, fully confirmed the efficacy of this treatment. Dr. M. stated the disease was very common in Belfast, affecting principally the girls employed in flax-spinning mills. During the ten years from June, 1863,

to June, 1873, there were 217 cases of this malady among the patients of the Belfast General Hospital, being 2.2 per cent. of the total surgical out-patient cases; 115 occurred in girls between the ages of ten and fifteen, and 63 between the ages of fifteen and twenty. One hundred and eighty-four were mill-workers. Dr. M. had had no opportunity of trying Dr. V.'s treatment, but at his (Dr. M.'s) suggestion, it had been used by Dr. Scott in fifteen cases in the Belfast Hospital, with most satisfactory results. According to Dr. Scott, from fourteen days to a month were sufficient for a complete cure. All pain ceased from one to three days after the first application; and the swollen irritable margin of the ulcer gradually disappeared, leaving a healthy granulating sore. —*Brit. Med. Journ.*, Aug. 30, 1873.

OPHTHALMOLOGY.

46. *Pigmentary Disease of the Eye.*—Dr. HIRSCHLER calls attention (*Archiv für Ophth.*, vol. xviii.) to a peculiar kind of pigment deposit which he has met with in the cornea.

Pigmentary deposits in the proper substance of the cornea occur, as a rule, in connection with scars, a portion of the iris being entangled in the cornea; but he refers only to pigment formed on the spot, not to pigment which has wandered into the cornea from elsewhere. The existence of black pigment has been repeatedly demonstrated microscopically in the cornea, as a result of the degeneration of hæmatin in cases of superficial or parenchymatous keratitis; but the occurrence of pigment in such quantity as to be visible to the naked eye, after the subsidence of inflammation, has hitherto almost escaped attention.

Dr. Hirschler's attention was first attracted by dark spots, which he noticed to appear in the cornea during the retrogression of diffuse parenchymatous keratitis, and which he regarded as mere transparent portions—circumscribed gaps in the parenchymatous cloudiness. Later observations induced him to look on them as accumulations of pigment in the deper layers, masked by the more superficial haze. As he has now observed this in two cases, that is, in three eyes, he thinks that probably the occurrence is more common than the silence of authors on the subject would lead one to expect.

These pigment deposits are met with during the period of absorption in cases of diffuse parenchymatous keratitis, and appear, in conjunction with commencing clearing up of the general haze, at those parts which are indicated by the presence of more numerous and larger newly formed vessels, and therefore more abundantly on parts near the centre of the cornea. Irregularly margined spots or disks, with four or more angles, are formed of the size of small pins' heads, or 2 millimetres (.08 inch) in diameter; or sometimes the spots may be quite circular. The colour is of a deep black, but when looked at from the front the deposits appear less deeply coloured, owing to the haze through which they are seen. If the latter be absent, then the black spots can scarcely escape observation in moderately clear daylight. By focal illumination under all circumstances they can be more closely examined. They are then seen to be situated about midway between the anterior and posterior surfaces of the cornea. When the infiltration of the cornea has become reabsorbed, these pigment-deposits become so apparent, that they may look like bits of coal-dust on the cornea. Under a magnifying power of 20 diameters, the deposits appear made up of a collection of several smaller spots. The centre of the spot is sometimes of a deep black, surrounded by a rusty-brown or deep-red circle; sometimes it is less deeply coloured than the periphery, and is then of a rusty-brown colour, making the whole spot resemble an irregular ring. In one spot, at a somewhat higher level, a deep-red border could be distinguished, but whether this was due to an effusion of blood or to a loop of vessels could not be determined.

Dr. Hirschler considers that there can be no doubt that this deposit of pigment originates from altered hæmatin, and consequently from antecedent effusion of blood into the parenchyma of the cornea. Additional evidence in favour of this was afforded by the presence of newly formed vessels.

Illustrations are given of the appearances of the deposits, and references are made to authorities on the deposit of blood-pigment.

Dr. Hirschler thinks that the long duration of the parenchymatous inflammation is of importance in reference to the production of these deposits. He describes two cases in great detail; but, before doing so, he remarks that, though differing in the mode of their appearance and in their course, the two agreed with the typical examples of the affection in question, inasmuch as, in both, the disease began at the periphery and extended over the whole cornea, and deprived this for a long time of its transparency; that in both a rich vascularity appeared; and that, finally, the duration was very protracted. In both cases there was slight iritis, not producing marked adhesions, but causing an advance of uveal pigment beyond the pupillary margin. In one case a rather considerable corneal staphyloma resulted, in both eyes, from the keratitis. In both cases Pagenstecher's salve was used for more than a year; and he calls attention to the fact that the pigmentation was first noticed after this remedy had been used for some time.

The first patient was a man, aged 24. He had diffuse parenchymatous keratitis, serous iritis, and pigmentary deposits in both eyes.

The second patient was a married woman, aged 29, who had parenchymatous keratitis, episcleritis, iritis in each eye, and pigmentary deposits in the left eye.

In conclusion, the author also calls attention to the complication of the keratitis with recurrent episcleritis, which was met with in the second case. He thinks it deserves more attention than is generally given to it. Dr. Schiess-Gemusens has written to the same effect (*Kl. Monatsbl.* 1871).

Dr. C. Ritter says (*Monatsblatt für Augenheilkunde*, Oct. 1872) that authors are almost wholly silent on the share which the pigment-layer takes in the inflammatory process. In most forms of iritis, the pigment-layer certainly appears to participate in a very slight degree, or not at all; but in certain cases the pigment-cells appear to take the principal part.

He narrates the case of a woman, aged 52, whose right eye had been defective after a blow three years previously. She could count fingers at the distance of a few feet.

The cornea was diffusedly opaque in a moderate degree. Behind the cloudy layers, two completely black points could be seen in the layers immediately adjoining Descemet's membrane. One of them was somewhat further from the membrane than the other. Both were at the lower part of the cornea. The size of the two was not alike; the larger had a diameter of about a millimetre (.04 inch). The intensity of the colour was extreme. The deep black paled but slightly at the margin; slight alterations in the tint were manifest also in the centre of the deposits. The vascularity around the cornea was slight; in the cornea itself there were no vessels to be seen. The aqueous humour was not altered, and the colour of the iris was normal. The margin of the pupil was everywhere, however, united to the lens by dense adhesions which were covered with very black pigment. After atropia, the adhesions were more marked; the pupil dilated outwards, and the blue iris-substance was drawn away from the adhesions all round. The adhesions were continuous with the pigment of the iris, and were covered with black pigment, if not made up entirely of pigment-cells. Manifestly the proper structure of the iris was but little affected. The disease originated, at least in great part, in the pigment-layer. The left eye was quite healthy.

Treatment could not be expected to be of much use, as the disease was of long standing, and the patient only attended for a short time.

The author cannot entertain the slightest doubt that the case should be regarded as one of iritis originating in the pigment-layer with secondary corneal mischief. The latter was wholly insignificant, the superficial layers were quite free, and there was not the slightest inequality of the epithelium. The deeper

layers were, it is true, diffusedly cloudy, but nowhere with any degree of intensity.

The two pigment-deposits, just in front of Descemet's membrane, could, without any difficulty, have become detached from the pigment-layer of the iris and have penetrated through Descemet's membrane. The complete resemblance in colour to that of the iris-pigment would confirm the supposition that this was what had occurred. The morbid change in the cornea is explained, partly as a secondary disturbance of nutrition in consequence of the iritis, partly as a deposition from the iris.

How it happens that this form of iritis has not hitherto been specially described, is incomprehensible. The author has not himself before observed it, at any rate so distinctly, but he may have overlooked cases, and his material for observation is not so abundant as is the case in some large cities. He cannot help suspecting that such cases have escaped notice.

He thinks it worth while to give a special name to the disease, and designates it "Iritis pigmentosa;" with more justice, in his opinion, than can be assigned to the name "Retinitis pigmentosa." He cannot, from one case, lay down any rules for treatment or for prognosis.

He protests against Hirschler's view that the pigmentary deposits in the tissue of the cornea in his cases were due to degeneration of hæmatin. Ritter says that the remains of hæmatin would never be of a "deep black," like "coal-dust," but of a reddish-brown colour. He thinks this is sufficient to upset Hirschler's view. He thinks the cases agree with his own, except in reference to the severe corneal affection present in Hirschler's cases. Ritter quotes statements from the narratives of the cases, showing that the iris was affected in each, much as in his own case.

He thinks that the transference of pigment from the iris in the cornea is not at variance with former experience, and that modern researches on wandering cells have removed any appearance of strangeness from his theory.—*London Med. Record*, Aug. 13, 1873.

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47. *Inflammation of the Cornea in Affections of the Trigeminus.*—Prof. EBERTH, of Zurich, proposes a new explanation of the occurrence of keratitis after section, injury, or disease of the fifth cranial nerve. This pathologist, whose observations and opinions are worthy of the greatest respect, has for some time maintained that the severity of the process in traumatic keratitis depends upon the conveyance of bacteria into the cornea by the foreign body, and not upon the trauma directly. He now describes (*Centralblatt*, July 19, 1873, No. 32) the occurrence of a similar keratitis without any external wound whatever—by the settlement of the organisms in the cornea after section of the trigeminus. The exophthalmos, loss of sensibility, diminished nictitation, and the desiccation of the exposed corneal surface lead on to inflammation, with the production of bacteric masses indistinguishable by the microscope from the condition in diphtheritic keratitis. The most superficial puncture of the affected spot causes a rapid extension of the disease. The second element, therefore, which has not been previously recognized in the etiology of keratitis after injury of the fifth nerve—but which, according to Eberth, is essential—is the presence of bacteria in the atmosphere. Both the condition of the globe after the section or disease of the nerve, and the condition of the atmosphere, will of course vary in different cases. The occurrence of the keratitis will therefore be influenced by the degree and extent of the desiccation, the amount of protrusion, and the size of the ocular aperture. And, on the other hand, the quantity of bacteria in the air and the presence of epithelial abrasions will determine the severity, rapidity, and extent of the inflammatory destruction.—*Med. Times and Gaz.*, Aug. 23, 1873.

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48. *Intermittent Neuralgic Vesicular Keratitis depending upon Traumatic Causes.*—Dr. EDWARD HAUSEN has published in the *Hospitals-Tidende* a paper on this affection, which he says has not been hitherto noticed. It takes its origin in a direct traumatic action on the terminal nerve-fibres, probably those of the corneal epithelium which, doubtless, exercise an important control over

the vitality of the epithelial cell. So pronounced are the neuralgic phenomena attending this affection that it might, perhaps with propriety, be called "neuralgia of the cornea" rather than "keratitis." The origin of the malady is always a wound in the shape of a scraping of the epithelium caused either by a needle or a twig, or some such thing. In from eight to fourteen days suddenly and generally by night, violent pains set in in the eye, shooting outwards in all directions from it, and accompanied by profuse lachrymation and photophobia. Treatment consists in dropping in a solution of atropia, warm fomentations, and, perhaps, quinia and bromide of potassium internally.—Dr. J. W. Moore's *Report on Scandinavian Medicine* in *Brit. and For. Med. Chir. Rev.*, July, 1873.

[We have seen several cases of this persistent and troublesome affection. In most instances it was brought on by a scratch from the finger-nail of infants, and the subjects of it were nursing mothers. In one case it was produced in a young lady by a wound inflicted accidentally by the finger-nail of a girl. The affection is apt to recur at intervals for a considerable period.]

MIDWIFERY AND GYNÆCOLOGY.

49. *Diagnosis of Early Pregnancy.*—Dr. Adolph Rasch, in a paper read before the Obstetrical Section Brit. Med. Association, stated that he wished to draw attention to an important symptom of pregnancy of the first three months, of which until now no notice has been taken by French, English, and German authors. After briefly reviewing the early symptoms as taught in hand books, including the symptom on which Dr. Barnes laid stress before this Association, Dr. Rasch said that no opinion should be expressed in any case unless the uterus had been made out beyond doubt by the bimanual examination. The vaginal examination should always be made by *two* fingers, unless circumstances forbade it, as by so doing results much more accurate could be obtained. An enlargement found, the distinction had to be made between enlargement by hypertrophy, or by tumours, and enlargement by pregnancy. To solve this difficulty, the author has continued his investigation in a very large number of cases of which he kept notes for nearly ten years, and enlarged experience has fully borne out what had helped him in making a few times a right diagnosis where better men had failed. This important symptom was fluctuation. That it must be felt very early seemed to him, *à priori*, certain. For why should half an ounce or more of liquor amnii, inclosed under conditions very favourable for this purpose, not be felt fluctuating equally well as a few drops of pus in a panaritium? The notes of several hundred cases satisfactorily answer this question. Fluctuation could be felt in some cases as early as the seventh week of pregnancy; in most cases after the second month. With every following year the author had less difficulty in detecting this very important symptom. By adding to it the areolar signs of the mammæ, we should be able in many cases to make an almost certain diagnosis. The author here mentioned another valuable symptom in early pregnancy which often directed attention to pregnancy, viz., the increased desire to pass urine, especially at night. It certainly ought to put the practitioner on his guard, and make him eschew the use of that valuable instrument for confirming a diagnosis already made—the uterine sound—which, in fact, should never be used by those that could not dispense with it in making a diagnosis. The objection to fluctuation as a symptom of pregnancy might be that it could not be felt, or if felt, might be due to retention of other fluid than liquor amnii. Considering the great rarity of retained menses or other discharges, the mistakes would be rare, even if other symptoms did not help us to make a distinction. But it would certainly be safer practice for a short time to suspect pregnancy, where it did not exist, than to do the reverse. To meet the other objection that fluctuation could not be felt so early, Dr. Rasch urged his hearers to try patiently, and

their assiduity would be rewarded. The best way to feel it was to introduce two fingers into the vagina, while the other hand steadied the womb through the abdominal walls, and alternately to manipulate the uterus with the two fingers. In some part of the uterus the fluctuation would be found often in one corner of the fundus, sometimes lower down. In most cases of early pregnancy, the author found the uterus anteverted, and then the manipulation was easier done than when the womb was retroverted. The fluctuation was in the beginning mostly only felt by the fingers in the vagina, sometimes, too, by the outer hand at the same time. After three months, it would be mostly felt by outward manipulation alone, but we should never trust to that only. The catheter should always be introduced when accurate results were desired.—*Brit. Med. Journ.*, Aug. 30, 1873.

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50. *Uterus in Pregnancy.*—The anatomy of the gravid uterus and the fœtal envelopes has been recently investigated afresh by Dr. KUNDRAT, of Vienna. The account furnished by the author in his paper (*Medizinische Jahrbücher*, 1873, No. 2) is partly confirmatory of the accepted description of these structures, and partly the opposite: in either case it deserves careful attention. The following points, which are the most generally interesting, refer to the human uterus and embryo:—

The mucous membrane of the newly impregnated uterus is known as the decidua, and is familiarly divided into the decidua vera, reflexa, and serotina. In structure it at first somewhat resembles the uterine mucosa, in or before menstruation; it is thickened, the glands are dilated, elongated, and tortuous, and there is a great increase of intertubular cells. In all respects the structure of the three portions of the decidua is very similar. Inferiorly the vera suddenly ceases at a short distance from the cervix in an overhanging border, and the cervix takes no part in the formation of the fœtal cavity. Both the Fallopian tubes and their inferior openings are patent during the whole period of pregnancy. When the impregnated ovum reaches the inferior tubal opening its progress, according to Kundrat, is not obstructed by an adhesive growth of the opposite mucous surfaces to each other, as some observers believe, for no such adhesion exists. For the same reason the ovum does not push before it and invaginate a portion of the mucosa, which becomes the decidua reflexa. The latter is clearly an outgrown and infolded portion of the decidua vera; for it possesses glands on its deep or ovular, as well as on its free, surface. The ovum is retained at the fundus of the uterus by the swollen decidua. If the swelling is not so great, the ovum may travel down towards the cervix; and it is for this reason that placenta prævia is more common in multiparæ. Kundrat does not believe that the ovum enters the mouth of a gland, but that it develops on the irregular surface of the serotina. As pregnancy advances the uterus enlarges, and the connection between it and the ovum becomes more intimate and complex. The enlargement of the uterus is at first out of proportion to the growth of the embryo, and a free cavity exists between the vera and the reflexa which is filled with a somewhat opaque mucoid fluid. It is not till the fourth month that the embryo fills the uterine cavity, and the walls, which were previously disproportionately thick, become disproportionately thin, while the envelopes become transparent. In the fifth month the process has advanced yet another step, by the adhesion —partial at least—of the opposite walls of the uterine cavity; that is, of the decidua vera and the decidua reflexa.

In regard to the connection between the chorion and the decidua, it has often be represented that the processes or villi of the former pass into the glands of the latter. Kundrat maintains that this arrangement was "but seldom" to be discovered. On the contrary, the chorion-villi were found to be fixed in the grooves of the serotina and on the sides of its elevations by a connective mass composed of mucus and degenerated epithelium. Other villi had buried themselves in the tissue of the serotina, and formed a connection so intimate that any attempt at separation ended in rupture. It is here that the placenta is afterwards developed. As gestation proceeds the changes on the decidua are very considerable, and in the last months peculiarly interesting.

The decidua reflexa becomes attenuated by pressure until reduced to a simple layer of the transparent envelopes of the embryo, of which it forms the most external portion. The decidua vera and decidua serotina, on the other hand, remain as comparatively thick layers of tissue, compact on the surface and cellular, but spongy in their deep portion, from the presence of the numerous ends of the dilated glands, which represent sinuses lined by epithelium. As the termination of pregnancy approaches there occurs, as we have said, a remarkable change on the lining membranes of the uterus. These and also the reflexa become whitish, dull, and of a pale yellowish or even yellowish-gray tint, opacity replaces transparency, and the process, which is discovered by the microscope to be one of fatty degeneration, passes into the deeper layers. This description of course reminds us of the simultaneous fatty degeneration of the placenta. When parturition occurs a portion of the membranes is expelled with the fœtus, and it is interesting to inquire what part, if any, of the envelopes is retained. Careful examination certainly reveals that the superficial portion of the decidua vera is as a rule included in the fœtal membranes, while the deeper portion is retained, although this is not always the case. During the first week post-partum the discoloured lining membrane of the uterus may be found microscopically to present the characters of the decidua vera, but the sinuses are full of blood, the superficial cellular layer gone, the fatty degeneration extends to the deepest layers, and the tissue generally is infiltrated with round cells and blood. The lochial discharge consists of such cells and of products of disintegration. In the second week post-partum the process has still further advanced, and the epithelium of the exposed sinuses is found to be proliferating. Restitution now begins and advances, and soon there is found on the surface of the muscular coat a fine layer of connective tissue, covered by epithelium and furnished with young glands, to represent the mucosa of the uterus, which is again at rest.—*Medical Times and Gazette*, August 16, 1873.

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51. *Tedious Labour from Debility and its Treatment.*—Dr. Hugh Miller, of Glasgow, in a paper read before the Obstetrical Section, British Med. Assoc., made some remarks having reference solely to cases in which delay was due to enfeeblement or failure of the natural powers of the organs specially called into action during parturition. The writer held that the element of time should not be considered in the classification of labours, that it was unscientific to do so, and that uncomplicated labours should only be assumed to be unnatural when the pains were no longer active, and the labour non-progressive. After considering the powers of expulsion in a healthy woman, the author referred to the forces at work which prevented a high standard of health from being maintained in city life, and said that, in proportion as it was wanting, labour was prolonged in many cases. Labour in cities was thus frequently tedious from constitutional debility, so that, even while it might be regular and its progress certain for a time, the pains either lingered or became arrested through exhaustion taking place before the labour was completed. When symptoms of acute fatigue set in the pains were short and sharp, and they recurred more frequently. The general indications for treatment were to support the strength before labour set in, and during the first stage, and as soon as the pains indicated debility, to deliver with the forceps. The timely application of the forceps was preferred to ergot, because it seemed more reasonable to assist a weakened organ by giving help from without, than by applying a stimulant to an already overworked one. This practice, instead of inducing flooding, helped to prevent it, through preserving the power of the uterus from becoming exhausted; it also prevented inflammatory diseases of the passages, and the death of the fœtus. In his private practice, he found one case in every twenty-six labours show symptoms of debility; and since he had adopted the early application of the forceps, not one of the children so delivered were stillborn.—*Brit. Med. Journal*, Aug. 30, 1873.

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52. *Death from Puerperal Eclampsia; Cæsarean Section; Extraction of Living Child.*—M. Marcé, interne, reports (*Le Progrès Médical*, June 14, 1873) an interesting case of this which was treated in L'Hôpital la Pitié, under the

care of Dr. Lorain. The patient was 35 years old, and in her eighth pregnancy. She suffered from puerperal uræmic eclampsia of an epileptiform character. The fatal result being undoubted, the patient was carefully watched, and every preparation made for the operation. The moment after she drew her last breath, the abdomen was opened, and an infant at full term extracted. The child was not cyanosed, but did not respire at first; but after tickling in the mouth and slapping with wet cloths, in a minute it began to respire, and regular respiration was soon established.

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53. *The Value of the Corpus Luteum as a Proof of Impregnation.*—Dr. WM. T. BENHAM records (*Edin. Med. Journ.*, August, 1873) the following highly interesting case. The subject was a female, æt. 29, who it was impossible could have had sexual connection with any one for at least several years before her death, was admitted into the Bristol Lunatic Asylum in December, 1864, suffering from epilepsy. She died on the 26th March, 1873. On examination the organs of generation externally "presented in a marked degree all the highly characteristic signs of virginity. On removing the uterus, ovaries, and Fallopian tubes, they were found to be in a state of intense congestion, the superficial veins standing prominently out, and being filled with dark-coloured blood. The left ovary was more congested than the right, and on its upper anterior surface, situated rather more internally than externally, was seen a bean-like prominence, surrounded by a plexus of bloodvessels all the more apparent from their congested condition; it was of a polished appearance, and of rather a bluish shade of colour. On examining this body it was noticed that its upper surface presented a small nipple-like projection, apparently formed by the distension of a small portion of the peritoneal covering of the ovary, and containing some soft distending material; some small bloodvessels could be observed ramifying round the base of it. At the centre of this prominence was a small irregular dark spot as if a small orifice had existed there, and had been closed up by a clot of blood. On making an incision through its long diameter, there was at once seen an oval-shaped cavity filled by a mass of partially decolourized fibrin, and entirely surrounded—except at the point corresponding to the nipple-like process—with a thick yellow substance of considerable firmness, pierced by a number of small bloodvessels which sprang from the vascular plexus surrounding it externally; and on using a magnifying-glass of low power, these minute vessels could be seen traversing its substance, and losing themselves on its inner edge, which was contiguous to the surface of the partially decolourized fibrinous clot filling up the cavity. On measuring this cavity it was found to be five-eighths of an inch in its long, and three-eighths of an inch in its short diameter. The yellow substance surrounding it was found to be of the uniform thickness of one-eighth of an inch, the whole structure measuring seven-eighths of an inch in its long, and five-eighths of an inch in its short, diameter. On again examining this yellow substance, it was seen to be of a firm granular-like matter, with many minute oil-globules scattered over its surface; and in parts where the bloodvessels were the most numerous they gave it a pinkish-yellow appearance. It will be at once seen that we have here occurring in the virgin ovary a corpus luteum, possessing such decided characteristics as to make it *per se* quite indistinguishable from the so-called *true* corpus luteum of impregnation of the same period, asserted by many writers—Paterson, Lee, Montgomery, Bernard, Deschamps, Müller, Ramsbotham, and others—never to occur but in the ovary of an impregnated female, and consequently regarded by them as infallible proof of a recent pregnancy.

"Hoping almost against hope that the ovule, which had evidently been only very recently extruded, might still be found in the cavity of the uterus, a section was made through its anterior wall, and on laying it open, there was seen a small circular body, of a reddish-white colour, almost buried in the pulpy purplish-coloured decidual débris, which thickly covered the whole of the interior surface of the uterus. On carefully removing what I could of this decidual matter from its surface, and examining it with an inch lens, it appeared to be more of a pinky-white colour, and having a fine velvety surface, which, under a higher magnifying power, was seen to consist of multitudes of white filaments. It mea-

sured, with the decidual matter surrounding it, and which could not be entirely separated from it, one-twentieth of an inch in diameter, and was situated a little more than seven-twelfths of an inch above the os internum, and slightly to the right side of the median raphé of the uterus. As I have already said, under a higher power its surface was seen to be composed of very short white filaments, which gave it much the appearance, only on a smaller scale, of one of the earliest impregnated ova on record, discovered and described by Velpeau as measuring about five-twelfths of an inch in diameter, and the filaments of which were so far developed as to measure one-twelfth of an inch in length. This ovum he stated to be fourteen days old.

"On making a section through this ovule, with the object of examining it more minutely, I noticed that a very small quantity of albuminous fluid escaped from it, and it lost its globular form directly. A partially collapsed cavity of very minute size was seen to occupy its centre, and although I carefully examined the incised ovule and the fluid which had escaped from it, I could discern nothing more of importance."

This case proves "that an unimpregnated ovule can and has descended into the cavity of the uterus, and remained there for some days without being, as stated by some, immediately washed away with the menstrual fluid, or without, as stated by others, having undergone such rapid dissolution as to have immediately passed away; and, what has been denied by many, that an ovule is ever impregnated in the cavity of the uterus itself, is now made extremely probable. There can, I think, be no doubt that, had this girl had sexual connection, this ovule might certainly have become a fecundated ovum; unless, indeed, what has never yet been demonstrated is the case, that the menstrual fluid, through which the spermatozoa would have to pass to reach the ovule, possesses the power of destroying those bodies immediately on coming into contact with them. Before passing from this subject, let me state that I think this individual case goes a long way to make it probable that where an ovule is extruded it takes place at the commencement of menstruation more frequently than at any other time. This ovule had evidently been extruded for some time—that is, not less than two days; and that it had not been extruded immediately before death is evident from the fact of its having been found in the cavity of the uterus, embedded in the decidual débris. It must, therefore, have taken some time to have been conveyed there, considering the distance it had to travel; and, besides, the condition of the fibrinous clot filling the cavity it left makes it certain that it had been extruded at least two days previously. It appears, then, that in this case the ovum was extruded at the commencement of menstruation, and that it is usually so in other cases seems, I think, to be indicated by this, that at the time of, and for a day or two previously to, menstruation, a much greater supply of blood flows to the ovaries than at any other period; and the fact of the distended Graafian vesicle sharing in the increased vascularity of the whole structure at that particular time, makes it extremely probable that the extra pressure then put upon the captive ovule should be sufficient to cause it to burst its coverings and to become extruded, and should it not be sufficiently developed to do so at that period, in all probability it would not become extruded until the ovary should be again the subject of increased vascularity; and this seems to show the reason why a menstrual period often passes without the extrusion of an ovule at that particular time. It would appear, then, that the increased vascularity which takes place at the menstrual period goes a long way to explain the mechanism by which an ovule is extruded more frequently at that than at any other time; also there can be no doubt that the increased vascularity is of great importance in producing those changes in the Fallopian tubes and their fimbriated extremities, which result in those parts of the sexual apparatus taking on the turgid and erectile character necessary for the due performance of the function of grasping the extruded ovule and of conveying it to the cavity of the uterus. But where, in cases by no means uncommon, an ovule is extruded and becomes impregnated at an *inter-menstrual* period, I am bound to believe, from instances which have come under my own observation, that it is owing to the fact that, from some exciting cause more or less potent, the ovaries have taken on an increased vascularity of action resembling that incident

to menstruation, and sufficient to extrude a well-developed ovum at an abnormal time."

Bischoff, Casper, and Kirkes believed that the so-called true corpora lutea may be produced independently of impregnation, and that they consequently cannot be received as proofs of pregnancy. That they are right in this conclusion this case materially helps to prove. The fact of a corpus luteum of menstruation having been found to so exactly imitate those of impregnation, if, indeed, this was only a *solitary* instance, must considerably weaken the theory still held by many, that a so-called true corpus luteum is a sure sign of impregnation. When we come to consider why impregnation should make such a vast difference in the appearance and structure of the corpus luteum resulting therefrom—as is said to be the case—it is by no means easy to see the reason why such should be so.

Dr. Benham believes "that the presence of a so-called true corpus luteum, of at all recent formation, in the ovary of a female, has not the slightest legal value whatever in determining the question as to whether impregnation has taken place or not. If that is proved, as I believe it is, by the facts I have brought forward, it should be of considerable importance in its medico-legal as well as in its anatomical and physiological bearings, for in one case at least recorded by Dr. Guy, the existence of a corpus luteum was held to *prove* that conception had taken place, when the uterus itself presented not the slightest signs of such having been the case."

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54. *Duration of Menstruation.*—Dr. COHNSTEIN gives the results obtained from careful inquiry of four hundred women, in whom the menopause had occurred several years previously. 1. The average duration of menstruation was thirty-one years. 2. The menopause occurred gradually in 76 per cent., suddenly in 24 per cent. 3. It occurred in those who had menstruated early (under 13 years) about three years later than in those in whom the catamenia appeared late (after the 17th year of age). 4. The regularity or irregularity of menstruation appears to have no influence on its duration. 5. More married women than unmarried obtain a menstruation period of 29–34 years. 6. Pluriparæ show the highest percentage of duration of menstruation for 29–32 years. If their last confinement take place between the ages of 38 and 42, the duration of activity of the uterus varies between twenty-four and thirty-three years; if it occur between the ages of 30 and 38, the duration of menstruation varies between twenty-five and twenty-eight years. Abortion hastens the appearance of the menopause. 7. Lactation increases the duration of menstruation. To sum up, the catamenial function is of longest duration in women who menstruate early, are married, have more than three children, nurse their children themselves, and cease child-bearing between the ages of 38 and 42.—*Brit. Med. Journ.*, May 31, 1873, from *Deutsche Klinik*, No. 3, 1873.

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55. *Dysmenorrhœa.*—Dr. GEO. H. KIDD, in his address to the Obstetric Section of the British Medical Association at its late meeting, calls attention to the occurrence of two forms of dysmenorrhœa, one arising from obstruction, the other caused by subacute ovaritis.

"That dysmenorrhœa, dependent on an obstruction to the exit of the menstrual fluid from the uterus," he remarks, "is of frequent occurrence, no physician of practical experience can doubt. Moreover, that, when it does occur, it can only be relieved by treatment directed to the uterus, and of such a nature as will remove the impediment, is a matter of every-day experience, and cannot be questioned; but, when we find it asserted that, without obstruction, there cannot be dysmenorrhœa, or that obstruction is the essential cause of the disease, and that it can only be cured by removing this obstruction, then we are bound to inquire whether clinical experience will confirm the statement, or prove that it is one founded on a too limited sphere of observation. I shall ask you, then, to allow me to trace, in rapid outlines, the clinical history of dysmenorrhœa, and to inquire into the varying nature of the symptoms we meet with. In the first place, I shall speak of cases in which the pain is, beyond a

doubt, due to some cause preventing the escape of the menstrual fluid from the uterus.

"The typical and most simple form of this class of cases is when the obstruction is produced by a small os uteri and narrow cervix. In a typical case of this kind, the condition of the os is a malformation, and is congenital; but it may also be an acquired condition, and is then the result of the contraction either of a cicatrix or of effused lymph. The impediment may, however, and often does, depend on other causes, such as a flexion, and then the symptoms may manifest themselves from the beginning of menstrual life, or not till a later period. A polypus, especially if so situated as to cause a valve-like obstruction, as in one of Marion Sims's cases, or the growth of a fibrous tumour, or some forms of inflammation, may also give rise to obstruction and dysmenorrhœa as an acquired disease.

"The pain in dysmenorrhœa, depending on obstruction, commences either when the discharge is beginning to flow, or some time afterwards. Patients frequently say it begins some hours before the discharge; but, if an examination be made with the speculum when the pain begins, it will be found that the discharge is actually exuding from the uterus, though not in sufficient quantity to make its way out of the vulva and attract the patient's attention. When the obstruction is not very great, and the discharge scanty, the pain may not occur for some hours, until, in fact, the discharge becomes so copious that it cannot escape through the narrow os.

"The pain is paroxysmal in its character, and seems to depend on the efforts of the uterus to expel its contents. As soon as these efforts have so far overcome the obstruction as to allow the free escape of the discharge, the pain ceases. During the interval of menstruation, there is freedom from pain, and the general health may be unimpaired, but the same cause that hinders the exit of fluid from the uterus prevents, in general, the entrance of semen into it, and the result is sterility.

"On examination, the impediment, its position, and true nature, can be ascertained, and, in the majority of cases, it can be removed by means adapted to the circumstances of the case.

"I have thus sketched the history of dysmenorrhœa caused by obstruction to the exit of the menstrual fluid, chiefly from the facts recorded in my own case-books. From the same source, I have now to describe another form of the disease, one in which the symptoms are so different, that it is impossible they can depend on the same condition. In these cases the disease, instead of being usually congenital, is always acquired. It may be in early girlhood, or it may be after having given birth to several children. In one case, the patient had been married eighteen years and had no family. 'While at school, through neglect,' she said, 'uterine disorder commenced, and has continued without intermission ever since.' In another case, the patient had been married six years; she had had two children, the youngest nearly four years old. She had not nursed either. She had never recovered thoroughly after the birth of her last child, but it was only within the last year menstruation became painful. In another, the disease set in after the birth of the third child. The patient became pregnant a fourth time, and nursed this child three months; but she was in bad health all the time of her pregnancy and while nursing. When menstruation returned, after weaning the child, it was as painful as ever. In many cases, the disease supervenes on the mechanical dysmenorrhœa, but the symptoms are so different, that the patient can herself tell when this took place.

"In the former group of cases, the pain commences simultaneously with the discharge or after it has appeared. In this the pain begins a week or ten days, or more, before menstruation, and at the same time that the pains occur in the pelvic region the breasts become painful, hot, swelled, and tender to the touch. The pelvic pains are spoken of as dull, achy pains; they are felt in the pelvic region, and extend down the thigh to the back. They are not the acute paroxysms of pain of the former cases; they are aggravated when menstruation actually begins, and often continue throughout the whole period, but more frequently are relieved as soon as the discharge is established. They then

cease, and return on, it may be, the fourteenth day; that is, at the middle of the interval. This 'intermediate pain,' as Dr. Priestley calls it, may last only a few days, or it may continue and increase in severity till the next menstruation, the only interval of ease being for the first ten or twelve days after menstruation.

"Menstruation in these cases is often irregular, generally retarded, sometimes it comes too soon, and in some cases a whole month may be passed over, but the pain occurs when the menstruation is due, even though the discharge does not appear.

"The discharge is generally scanty, but sometimes it is excessive. Its appearance is almost always preceded or followed by severe headache, often by vomiting, and, during its flow, palpitation is often complained of, also frequent micturition, and sometimes tenesmus and kneading in the rectum.

"Miss H. states that menstruation has always been painful during the first two or three hours, but for the last two or three years she has suffered very much from pain for a week before menstruation begins, and at the same time her breasts have also become very painful. She has had much palpitation lately, and severe headaches before menstruation begins.

"Mrs. W., married seven years, no children, states that menstruation was always painful at the beginning, but, since marriage, she has suffered for a week before it begins from pain round the sides, stomach, and back, and from pain in her breasts, which become swollen. About five years ago, the os uteri was slit, after which she became pregnant, but aborted at the end of the third month. The painful menstruation continues, notwithstanding the operation and pregnancy. These were cases in which the form of dysmenorrhœa, of which I now speak, supervened on that due to obstruction; on examination, in this latter case, the uterus was found normal in position and size. The os and cervix were quite healthy, but the os was very open in consequence of the operation that had been performed on it. The right ovary, however, was found to be swollen, and very tender to the touch.

"In many cases, in addition to the symptoms already described, there is a constant dull, aching, sickening pain in the back; and there is so much pain, *in coitu*, that all attempts at intercourse have to be given up. Mrs. C. has been married ten years, and has no family. For many years she has had painful menstruation, the pain beginning more than a week beforehand. The os uteri was twice slit, without in any way relieving the pain of menstruation. She has also had the orifice of the vagina dilated, for the pain *in coitu*, but without benefit. On examination, the vagina admitted a full-sized speculum with ease; there was no contraction or spasm at the orifice. The uterus was found with the cervix slit, but otherwise healthy, and the right ovary was found lying in Douglas's space, somewhat enlarged and tender to the touch, the pain, on pressure on it, being of the same character as that caused by intercourse.

"This prolapse of the ovary into Douglas's space was described by the late Dr. Rigby. It is a frequent accompaniment of the form of dysmenorrhœa, now spoken of, and is productive of great pain *in coitu*. If it should be the left ovary that is prolapsed, there is also pain in defecation, and this pain and the pain in intercourse can generally be relieved by the use of the lever pessary of the late Professor Hodge.

"It has been mentioned that, when the menstruation has missed, the pains occur at the time, notwithstanding the non-appearance of the discharge; and it may be further mentioned, that in some cases it continues for a year or more after menstruation has finally ceased.

"When we make an examination in these cases, we may find the os uteri small and contracted; or the uterus bent on itself, or presenting evidences of endometritis; but that these are only complications, is made evident by the fact that in a large proportion of cases we find the uterus normal in position and size, and its tissues perfectly healthy. If we place the patient on her back, with her head and shoulders raised, and her legs well drawn up, and, having introduced the right forefinger into the vagina, make pressure with the left

hand over the hypogastrium, we shall find the ovaries, which in the healthy state can seldom be recognized, one or both of them enlarged and very sensitive to pressure. If one of them should lie in Douglas's space, the true nature of the case will be recognized still more easily, and there will be no hesitation in referring the symptoms to their true pathological cause—subacute inflammation of the ovaries.

"To understand clearly the sequence of the symptoms and their true nature, it is only necessary to bear in mind the function of the ovaries, and their sympathetic relations with other organs, especially the breasts; to remember that the ovaries preside over and initiate the process of menstruation; that, in preparing for this, the Graafian vesicles, originally deeply seated in the substance of the organ, gradually enlarge and approach the surface till they become prominent, and then, rupturing its coats, discharge their contents into the Fallopian tubes, thus constituting the essential part of menstruation. It is not necessary to dwell on the physiology of menstruation on such an occasion as the present; but, if we consider for a moment, as was suggested by Dr. Meigs, the pain and various reflex irritations that so frequently attend the performance of another physiological process—dentition—we will have less difficulty in understanding that pain and various reflex irritations may attend the growth of the Graafian vesicle, its approach to the surface, and its bursting through the coats of the ovary, if this organ be in an unhealthy state.

"In dysmenorrhœa arising from obstruction, we may speak with much confidence on effecting a cure by dividing or dilating the os uteri, or by other appropriate means. In dysmenorrhœa caused by subacute ovaritis, surgical or other treatment directed to the uterus is of no avail, and, indeed, we must be very cautious in promising permanent relief. Leeching, especially at the anus, hot baths, hot syringing, sedatives to the rectum, counter-irritation over the ovaries, the internal use of the bromides, and, above all, rest, and especially physiological rest, will procure relief, and in my hands have often done so after surgical operations have utterly failed."—*British Medical Journal*, August 16, 1873.

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56. *Uterine Polypi.*—Dr. T. More Madden read a paper on this subject, before the Obstetrical Society of Dublin (June 28, 1873), an abstract of which, with the interesting discussion to which it led, we shall place before our readers.

Dr. M. remarked that the subject afforded a striking illustration of the progress of modern obstetric surgery; their diagnosis being now made with certainty, and their removal, with every prospect of success, being now possible by a comparatively rapid, painless, and bloodless operation. The cases of uterine polypi which Dr. Madden had observed were, he stated, divisible into three classes, viz., mucous, fibroid, and cystic polypi. The first, developed from the lining membrane of the uterus, and easily destroyed by torsion or pressure; the second, formed within the pseudo-muscular substance of the uterus, and either sub-mucous, or sub-peritoneal in their origin. The distinction made between intra-uterine tumours and intra-uterine polypi, Dr. More Madden considered unnecessary and untenable. The structure of a so-called fibroid tumour of the uterus is identical with that of a fibroid polypus: either may be encapsuled, and the symptoms of one cannot be distinguished from that of the other. A fibroid polypus is generally but a more advanced stage of a sub-mucous tumour, which, as it grows downwards into the uterine cavity, loses its sessile character, and becomes pyriform and constricted, or pedunculated, by its own weight, at its point of projection from the uterine wall. As to the age at which uterine polypi are most frequent, Dr. More Madden gave a table of fourteen cases, by which it appeared that the larger number of cases were observed about the period of the approach of the "change of life." The symptoms in these cases were menorrhagia or metrorrhagia, profuse or offensive leucorrhœal discharge, and uterine pain, varying, in different cases, from the slightest possible degree of local soreness to the most intense uterine colic. These symptoms, although also applicable to other uterine diseases, were, how-

ever, of importance as indicating the necessity for a local examination, by which alone the true nature of the case can be recognized. The treatment of uterine polypi may be divided into the surgical or curative, and the medical or palliative. The former, when applied to intra-uterine polypi, is of comparatively very recent origin. The credit of proposing the dilatation of the os and cervix uteri by sponge tents, for this purpose, is given to the distinguished obstetric surgeon, Sir James Simpson. But Dr. More Madden read an extract from an ancient volume, entitled, "*The Method of Physick*," by Philip Barrough, the 8th edition of which was published in 1639, which showed that the very same mode of effecting the dilatation of the os and cervix uteri was described and practised at least 234 years ago. In the great majority of cases there can be no question that these growths should, if possible, be removed by operation. But it is as unquestionable that in some cases operative interference is not available; in others, the symptoms are hardly sufficiently urgent to demand this; and again, in other cases we cannot induce the patient to submit to an operation. Under such circumstances Dr. More Madden stated that he was convinced that the progress of the disease may sometimes be checked, its symptoms alleviated, and the patient restored to comparative health and comfort, by purely medical treatment. Moreover, in every case of polypoid disease of the uterus, the surgical measures required should be conjoined with appropriate constitutional treatment. The remedies from which Dr. More Madden has seen most benefit in these cases were, the bromides and iodides of ammonia and potash, given in very small doses, and steadily persevered in for a considerable time; or of a weak solution of iodine. These medicines should be conjoined with the topical application of iodine to the tumour; either by Dr. Savage's plan of injecting a small quantity of the tincture into the uterine cavity; or by Dr. More Madden's own method, of dilating the cervical canal, and swabbing out the uterus with a strong solution of iodine dissolved in glycerine. This application must, however, be always made with caution, as, if great care be not taken, it may, as in some cases cited, produce very alarming consequences. Dr. More Madden referred at some length to the curative influence in this disease of some of the iodated and bromated Swiss and German mineral waters, which he had brought under the notice of the Society some months before, in a paper "*On the Constitutional Character and Treatment of the Diseases of Women connected with Chronic Inflammation of the Uterus*," and also in his work on "*The Spas of Germany, Switzerland, France, and Italy*." As some recent writers had very freely borrowed his opinions—the fruit of long personal experience and observation at various spas of the Continent, to which he had been one of the first to call attention in the treatment of uterine complaints—he again reiterated his conviction of the value of some of these waters, and especially of the iodated and bromated springs of Kreuznach and Wildegg, in the treatment of the disease now under consideration, and referred to cases illustrating this observation. In the treatment of the uterine congestion associated with polypus of the womb, tepid or cool injections, *per vaginam*, are generally most serviceable. The ordinary syringes used for this purpose, as well as that of Dr. Graily Hewitt's, were inconvenient and fatiguing to the patient. Dr. More Madden exhibited an improved syringe which he had had constructed on the principle of the siphon, and had found very useful. The paper concluded with the detail of several cases of polypus of the uterus, specimens of which, removed by Dr. Madden, were exhibited.

Dr. LOMBE ATTHILL considered that the question of the treatment of fibrous tumours of the uterus by medical means, ought never to be entertained if it were possible to remove them by a surgical operation. He believed that it was a more dangerous procedure to frequently dilate the cervix—for the purpose of facilitating the injection of fluids or application of caustics or iodine—than to remove a tumour by operation. Personally, he believed patients were more likely to die from the effects of prolonged manipulation. Two of his patients from whom he had failed to remove tumours, and who had consequently been subjected to rather protracted operative measures, had died; while in other cases in which he had successfully removed the growth, no unfavourable results ensued. If, therefore, medicinal applications are to be made to the uterus, they

should not be done by repeated dilatations of the os and cervix, but through a tube such as that he had just exhibited. He thought that prolonged irrigation of the uterus and vagina with cold fluids, by means of a douche, such as that shown by Dr. Madden, objectionable, having seen a case which very nearly proved fatal, from an acute attack of pelvic cellulitis, ending in the formation of an abscess, in a lady who had used injections of cold water into the vagina for the purpose of checking profuse menstruation. He, therefore, recommended that fluids so employed should be of the same temperature as that of the body.

Dr. KIDD said he had never seen much benefit from the medicinal treatment of fibroid tumours of the uterus. When these tumours set up an inflammatory action, and the surrounding tissues become infiltrated with the products of inflammation, properly directed treatment will cause absorption of these, and so the tumour will appear to be lessened. But he had never seen any case in which the tumour itself had been actually diminished in size. This, he believed, was as true of the waters of Kreuznach as of other forms of treatment. These waters have a very high reputation, and patients suffering from fibrous tumours are constantly sent to Kreuznach. He visited Kreuznach last year, and had a long conversation with Dr. Præger, one of the leading physicians there, and found he held the same opinion as to the benefit to be derived from the use of the waters as he himself did, and which he had already mentioned. Of the various drugs that have been recommended, Dr. Kidd thought the chloride of calcium makes the patients more comfortable than any other, especially when it acts a little on the bowels. Chloride of calcium was first recommended by the late Dr. Rigby, and it is spoken of very favourably by Dr. M'Clintock; but, though it alleviates the sufferings of the patient, he, Dr. Kidd, had never seen any case in which it caused absorption of the tumour. These tumours often become less in size, and sometimes almost quite disappear when menstruation ceases; but this cannot always be waited for, and then surgical treatment, that is the actual removal of the tumour, is the only treatment to be relied on. Unfortunately it is not always possible to accomplish this; if not, the application of nitric acid will often check hemorrhage. Dr. Kidd referred to the position of the tumour in one of Dr. Madden's preparations, and also in Dr. Cranny's. In each, the tumour grew from the posterior wall of the uterus and bulged out the anterior wall. At previous meetings of the Society, he, Dr. Kidd, had alluded to this bulging out of the wall of the uterus opposite to the seat of the tumour. If this be a law, it will prove a matter of great practical value, and enable us to make the diagnosis between a pedunculated intra-uterine, and an interstitial tumour by the sound alone, before proceeding to dilatation. If there be a tumour growing, say from the posterior wall of the uterus, it will cause a bulging forwards of the anterior wall, and the sound can be passed along the side that is bulged out; whereas, if the tumour be an interstitial one, the sound will pass, not along the bulged out wall, but along the opposite one.

Dr. CHURCHILL had never seen medicines nor applications of iodine do any good in the treatment of polypi. He had, however, seen large fibroids enucleate themselves. He thought that the points stated by Dr. Kidd were of extreme value, and likely to prove of great importance. Dr. Churchill then alluded to the curious circumstance (which, he stated, he was unable to explain) that the introduction of even a single tangle tent through the os internum sometimes produced very severe effects. He narrated a case in point, which nearly proved fatal, peri-uterine inflammation having been set up, with the formation of an abscess between the rectum and vagina. He was constantly in the habit of introducing a tent through the os externum and keeping it in the canal, by means of a plug, for twenty-four hours, without the slightest inconvenience or risk; but when once passed beyond the inner os, a region of danger was entered upon.

Dr. MORE MADDEN, in reply, said that he had never meant to put drug treatment in opposition to the surgical treatment of uterine polypi, except in those cases in which an operation is not permitted, or is inapplicable; and in these remedial treatment is oftentimes most serviceable.—*Irish Hospital Gazette*, July 15, 1873.

57. *Chronic Inversion of the Uterus; Reduction effected by Manipulation.*—Two cases of this were reported to the Dublin Obstetrical Society, June 14, 1873.

The first was reported by Dr. GEO. H. KIDD. The subject of it was a lady who had been confined in August, 1872. When she came under Dr. K.'s care he found a tumour in the vagina which, on careful examination, he found to be an inversion of the uterus. It was almost complete, that is to say, the neck of the tumour was surrounded by a portion of the lip of the uterus, but not more than one-fourth of an inch in depth. A section of the tumour would present an appearance like the diagram which he now exhibited. He had some doubt as to whether he should call it a complete or an incomplete inversion; but it was as complete as any case he had seen; there was nothing but a small lip that had not been turned in. The woman was extremely pale and anæmic, and had a countenance expressive of very great suffering. She came into the Coombe Hospital, and after allowing her to remain in bed a few days he tried to reduce the tumour. He put her under the influence of chloroform, and placing her on her back on the table, he introduced his hand completely into the vagina. He grasped the tumour in his hand, and compressed it for a few seconds, so as to empty it completely of blood. He then lengthened his fingers, and grasping the tumour between them and his thumb, and compressing it as much as he could, he gradually pushed it up into its place.

The second case was reported by Dr. G. JOHNSTON, Master of the Rotunda Hospital The subject of it was æt. 35, married, mother of five children, admitted into Rotunda Hospital 25th of July, 1871, suffering from hemorrhage caused by inversion of the uterus, which took place at her last confinement [Jan. 1, 1871], and as she states, must have occurred at the time of the expulsion of the placenta, as the person in attendance hurt her very much in forcing it off, immediately after which she had great flooding, so much so as to render her quite unconscious. However, she suckled her child for a period of six months, the hemorrhage continuing more or less ever since her confinement, but has diminished since she weaned the baby.

On examination the uterus appeared protruding through the vulva, and on passing the fingers within the vagina about half an inch of the cervix was found uninverted, and could be felt distinctly encircling the tumour, which was five inches in length, with a diameter of nearly three inches.

On the 2d of August, seven months after the accident had taken place, the patient was put under the influence of chloroform, and having been put on her left side in the usual obstetric position, Drs. Denham, M'Clintock, and Atthill assisting, the fingers of the right hand were introduced within the vagina, the inverted mass was grasped firmly at the cervix, and by degrees, and after some difficulty, reduced within the os, and, eventually, the uterus was completely restored to its normal position. There was no hemorrhage during or after the operation, which lasted about twenty minutes, and as soon as she recovered from the anæsthesia she was given a full opiate.

On the 6th she was examined with the sound, when we ascertained it passed into the cavity about 4¼ inches. There has been no hemorrhage since; in fact she convalesced favourably and went home quite well on the 27th.

I have heard within the last three weeks that she continues in excellent health, menstruates regularly every month, and in the normal quantity.—*Dublin Journ. Med. Sci.*, July, 1873.

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58. *Amenorrhœa from Congenital Malformation.*—Dr. CHURCHILL read a paper on this subject before the Dublin Obstetrical Society, May 10, 1873. To make an accurate diagnosis was often difficult, and yet the question of relief depended upon this point. The means of forming diagnosis were either physiological, or physical. The first dealt with the presence of the menstrual *molimen* and of sexual gratification, etc. By means of the second, we judged of the presence or absence of the different organs of generation. A most useful method of examination was that termed the *bimanual manipulation*. Dr. Churchill related twelve cases in illustration of his subject, in some of which, the ovaries were either not present, or were in an infantile

state, undeveloped, and not acting; while in others, the fault consisted in the absence of the uterus, or, in congenital closure of the os uteri (one case). As regards treatment, of course in most cases, nothing could be done; but, to remedy an undeveloped state of the uterus, Sir J. Y. Simpson had recommended the use of a galvanic pessary. A practical question was, whether we think that a patient ought to marry, in whom these defects were discovered. However reluctant we should be to condemn her to a single life, it should not be forgotten that another person is concerned in the matter, and therefore the decision against marriage is called for, or, if she be fully bent upon marrying, the other party ought to be fully informed as to the existing defect.—*Brit. Med. Journ.*, August 9, 1873.

59. *Unilateral Development.*—Dr. Ringland communicated to the Dublin Obstetrical Society a remarkable case of this in a young lady æt. 20, who had never menstruated naturally, but in whom vicarious discharges at each monthly period had occurred for more than four years, through the bladder, rectum, nose, or eyes. The left side of her body was perfectly developed sexually; while the right was not so. The left breast was normal, the right resembled that of a girl of 12; there was hair on the left side of the pubes, none on the right; the left labium was fully formed, the right was almost wanting. The clitoris, vagina, and uterus were absent. The left ovary could be felt, but the right could not be detected. Sexual desire existed in this case, but a strong opinion as to the inadvisibility of marriage was given.—*Ibid.*

60. *Form of the Body in New-born Children.*—Pfankuch calls in question the statement of Simpson, that male children are more exposed to danger than females during birth, on account of their greater size. He finds that, of children of equal weight, more males die than females; and, with the view of ascertaining whether this was to be accounted for by the size of the head, he has examined the relation between the head and the rest of the body in 714 new-born children. He finds that, towards the end of pregnancy, the increase in weight of the child is relatively more rapid than that of its length or of the size of its head, the body and limbs becoming more developed. For equal weights, boys are longer, and have larger heads than girls. First children are longer and have larger heads than those which follow them.—*Brit. Med. Journ.*, May 31, from *Archiv für Gynæcologie*, vol. iv., part 2.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

61. *Experiments with Snake Poison; Potassa as an Antidote.*—In a letter from Madras in the *Med. Times and Gaz.*, Aug. 23, 1873, the writer relates some experiments he witnessed made by Dr. John Shortt with snake poisons. He states, "We next witnessed a set of experiments to show the effects of liquor potassæ on the snake poison and on the animals poisoned with it. For this purpose a solution was made of four grains of dried cobra poison in half an ounce of distilled water. The dried poison had not lost an atom of its virulence (as we afterwards saw) although it was taken in August, 1870. The solution was slightly opalescent. On adding liquor potassæ to a still further diluted quantity, some striking chemical change evidently took place, for it speedily became of a bluish-black colour—at first slight; afterwards intense, like newly prepared ink.

"Having satisfied us of the reaction between the potassa and the poison, experiments were made on animals. Two dogs injected with the solution of cobra poison into the cellular tissue of the parietes of the chest died in one hour and thirty-five minutes and in two hours and forty-seven minutes respectively; whilst one dog that was injected first with cobra poison, and with diluted liquor potassæ afterwards, survived for four hours and fifty-seven minutes; and a

rabbit that was injected with the dark mixture of cobra poison and liquor potassæ was quite unaffected by the operation. . . . . The reader will see at once that in the effects of the liquor potassæ Dr. Shortt seems to point if not to an antidote yet to something like one."

A case is related from the *Madras Monthly Journ. Med. Sciences*, in which the potash treatment proved successful. This is the third successful case under this treatment. Dr. S. states: "Long before I had the opportunity of testing the action of the liquor potassæ on the human subject, I ascertained the property it possessed of neutralizing snake poison, and the difficulty I experienced was to introduce some means to expedite its action in the living blood. After repeated trials and experiments, I found that brandy as a diffusible stimulant roused the nervous system, excited the circulation, and thus carried the potash into it as rapidly as possible, and enabled it to overtake and neutralize the poison in the blood. The secret of success, then, consists in bringing the patient's system rapidly under the influence of the brandy—or in other words to make the patient *drunk* as speedily as possible, and maintain this effect for some time after. During the first forty-five hours of the patient's stay in hospital he took seventy-two ounces of brandy and four ounces and a half of the liquor potassæ by the mouth, fourteen ounces of brandy and three ounces and a half of the liquor potassæ by means of enemata through the rectum, and four ounces of the liquor potassæ was used in the bath he had. In all eighty-six ounces of brandy, and eleven ounces of the liquor potassæ were used in this case!"

62. *Treatment of Snake-bite by Artificial Respiration.*—Mr. VINCENT RICHARDS records (*Indian Medical Gazette*, May 1, 1873), a series of eight experiments instituted on dogs, to test the value of artificial respiration, as suggested by Dr. Fayrer, in cases of snake-poisoning, and he thinks the results, though not absolutely successful, are very encouraging. In one case the heart's action was maintained for 10 hours, and then ceased only on the discontinuance of the artificial respiration; and in another, the heart was kept beating for 24 hours and 35 minutes, sensibility being restored after it had been completely lost.

The following is his explanation of the physiological action of snake-poison. When snake-poison is injected into the areolar tissue, as is usual in the case of a bite, absorption gradually takes place. When the poison reaches the lungs, it appears to excite the pneumogastric nerve, and through the medulla and spine the phrenic and intercostal nerves, principally leading at first to an accelerated action of the respiratory muscles, and afterwards, as a larger quantity of poison becomes circulated through the lungs, and the stimulus to the nerve-centres is augmented, to paralysis of them. Vomiting, which is a frequent, though not constant, symptom, probably arises from this irritation of the pneumogastric nerves. The medulla oblongata and spine are, indeed, primarily affected, and it is only as a secondary effect that the cerebral ganglia and cerebrum are involved. Presuming this to be the physiological action of the poison, it follows that a person fatally bitten dies from asphyxia produced by paralysis of the motor and respiratory nerves. The indication of cure, provided the effect of the poison on the nerve-centres is not permanent, is therefore artificial respiration. Moreover, if elimination of the absorbed poison can go on, as appears to be the case, we have good reason to hope for favourable results. When, however, the amount of poison injected is overwhelming, little, I think, can be hoped for from the treatment. That an animal may be affected even to convulsions, and yet ultimately recover without treatment, I have already shown (Fayrer's Thanatophida of India, p. 127), and I certainly think that when the quantity of poison injected into the areolar tissue would, under ordinary circumstances, be just sufficient to kill, artificial respiration, if properly maintained, might save life, as it does in the case of curara poisoning.

I believe it was this latter fact which first led Dr. Fayrer to make a trial of artificial respiration in snake-poisoning, and the subsequent encouraging results which he obtained induced him to suggest its adoption in such cases.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Sub-spinous Dislocation of Shoulder, and Reduction by Manipulation. By H. C. MARKHAM, M.D., of Winthrop, Iowa.

Jan. 25th, 1873, I was called to visit L. N. B., a large and muscular man, who was suffering much pain in his right shoulder, and gave evidence of having received severe injury of the part. He stated that while riding in his cutter his horse became unmanageable, and he was thrown out, alighting upon his left side. He still with his right hand retained his hold upon the reins, and while in this position, by a spring of his horse, his arm was jerked violently upward. Half an hour afterwards I reached him, and found the arm dropped to the side and entire immobility present. The contour of the shoulder was decidedly unique; its superior aspect presented a broad flat surface, slightly sloping towards the back. A dinner plate could have easily rested upon this "plateau." Chloroform was administered and reduction by extension attempted; but in spite of the most protracted and varied endeavours the luxation persisted. At length I decided to adopt the plan so successful in hip-joint dislocation, viz., that by manipulation. Grasping the humerus with my right hand, and with the left steadying the scapula, the arm was brought up nearly to the side of the head; I then carried it obliquely backwards and downwards, nearly describing the movement that caused the accident (except in reverse order). As the arm reached a position which pointed to the opposite hip a distinctly audible snap was heard, which with the sudden restoration of the natural rotundity of the shoulder gave evidence that reduction was accomplished. The subsequent tenderness was extreme and protracted, showing that much laceration attended the injury.

All surgical authors agree that this form of dislocation is very rare, and it is claimed by some that it is never entire. But cases reported previous to this one prove that the latter actually occurs, and no joint was ever more completely dislocated than the case just reported, as the head of the humerus was felt against the spine of the scapula, and somewhat higher than is usually described. The mode of reduction, which alone seemed capable in this case of being made successful, was that by manipulation. In elevating the humerus the spine of the scapula served as a fulcrum, at the same time the opposing contraction of the supra-spinatus muscle was overcome, and the great pectoral muscles thus given opportunity to move the head into its normal position. Whether this be the correct theory or not, I am positive that it is the right procedure in these cases, and that all other methods are by far more difficult.

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Case of Encephalocele. By W. SCOTT HILL, M.D., of Augusta, Me.

In June, 1871, I attended a lady 30 years of age in labour with her third child. The labour lasted about three hours and a half, pains not notably severe. Child a well-developed boy weighing 8½ pounds. Nothing

unusual was noticed about the infant at its birth. A few days after a small nævus was observed on the skin over the anterior fontanelle. The second week a small conical tumour appeared directly under the nævus, about the size of a large pea, soft to the touch, and pressure appeared to cause some distress, especially if hard enough to make it disappear, which it would, but again appear on the pressure being removed. The child was occasionally seen during the next four weeks, nothing being done in the mean time, as I had hopes it might not increase very much. The child was not allowed to cry or fret, and its health otherwise was good. During the fourth week after the appearance of the tumour it rapidly increased in size. It was conical, circular at its base, about three-quarters of an inch in diameter, and about the same in height. A pulsation synchronous with the heart was plainly felt, and was also perceptible. Coughing or crying increased its size. Pressure sufficient to force it completely within the cranium seemed to have a benumbing effect similar to mild concussion. Knowing the usually fatal result of cerebral hernia, and believing the only chance for recovery was in arresting the increase of the tumour and waiting for the bony closure of the fontanelle, the following treatment was adopted as best calculated to meet the indications: A circular compress of tea lead with a diameter full twice that of the base of the tumour was sewed between two layers of chamois leather. This was placed in the centre of a strip of resin plaster (emplast. resinæ) some six inches long. Gentle but firm pressure was made on the tumour, the size being diminished about one-half; not deeming it safe to use greater continued force than that, the scalp, pushed up on each side towards the hernia, in order to bring constant pressure on the tumour, and the plaster fastened at the ends first. It evidently gave some pain and uneasiness at first, but it soon passed off, and the infant appeared to notice it but little. This treatment was continued until the end, excepting after a couple of months a small pad was placed between the lead compress and the adhesive plaster when greater pressure was made. There was no increase in size of the encephalocele after the dressings were first applied. They were not taken off except to change the adhesive plasters as often as it was found necessary. During the summer the little patient had a troublesome diarrhœa, probably due in part to artificial feeding. The plasters caused no irritation of the skin further than some itching. The child was very pale, but grew finely, and was as large and fat, notwithstanding his diarrhœa, as more fortunate infants. On his first birthday by chance I visited him, and found the fontanelle had closed, the cranium being firm when all the dressings were removed. There was some thickening of the extra-cranial tissues, but no pulsation or any of the former symptoms of encephalocele. The nævus of course remained. During the next three or four months he was again occasionally subject to attacks of diarrhœa. In autumn he was carried on a visit to another State, where he was well, and has been since that time. He is very intelligent and active for a child 22 months old, seeming to suffer nothing from the usually fatal disease.

There was also umbilical hernia, which was cured in a couple of months or more by a pad secured in place by a strip of adhesive plaster.

Case of Spontaneous Reduction of an Inverted Uterus Eight Weeks Post-Partum.—By H. HUNT, M D., of Belloit, Wisconsin.

I am induced to report the following case on account of its rarity. Prof. Thomas, in his treatise *On the Diseases of Women*, quoting only two cases in which it occurred.

The subject of this case was æt. 23, tall, thin, and feeble constitution, who was delivered of her first child August 3d, 1869, under the care of Dr. Merriman, after a natural but somewhat protracted labour. The after-birth was adherent, the cord very small and tender. The child was a female, weighing six pounds. Five days after confinement Dr. M. was called in to see his patient on account of some difficulty she experienced in voiding her urine, and while introducing the catheter he discovered the inverted uterus low in the vagina. The next day I was called in consultation. Up to this time there had been considerable flooding and much uneasiness on the part of the patient, but not sufficient to create much alarm. Dr. Taggart being also subsequently called in consultation, he advised an operation to restore the organ, to which a cordial consent was given on the part of all the physicians present, and the patient and her friends. Therefore, on the seventh day after confinement, Dr. Taggart, assisted by Drs. Strong, Merriman, and myself, made an unsuccessful attempt to restore the organ under the influence of ether, which lasted about one hour, but without success, owing to the too rigid contraction of the circular fibres of the neck of the uterus. The rubber-bag pessary was introduced, an anodyne administered, and the patient placed in bed quite exhausted. Ten days after the operation I was called in to see both mother and child. The mother was quite feeble, and was labouring under a severe cough; had had but little flooding, and the condition of the womb remained unchanged; she nursed the babe, which had diminished in weight from six to three pounds. After making three or four visits both appeared much better, and I discontinued my attendance. She began to stand alone and walk a little four weeks after the operation, but without any apparent change in the condition of the womb. About this time she removed to a distant part of the city, and I did not see her again until the 1st of October, nearly two months after her confinement, when I found by an examination per vaginam that the uterus was completely restored to its normal character.

According to my advice and instruction she had watched the progress of events as well as she could. About six weeks after delivery she noticed a change was taking place. The tumour was evidently rising high and diminishing in size, and this change continued to go on until she could not feel the tumour. So between the sixth and eighth week after delivery nature restored the uterus without external aid. After weaning the child the catamenia appeared and she menstruated for two years thereafter and until her death, which occurred some six weeks ago of pulmonary hemorrhage. Her lungs were unusually tuberculated.

Taking the history of this case in connection with the new doctrine of *post-partum* involution by fatty degeneration, the probability is there would be but little difficulty in returning the womb at or about the sixth or seventh week post-partum, for at this time the fibres have but little contractility or power of resistance, and the body of the organ could be pretty readily passed through the neck by the hand and plug operation.

Absorption by Suppurating Surfaces. By A. YOUNG, M.D., of Prescott, Pierce County, Wisconsin.

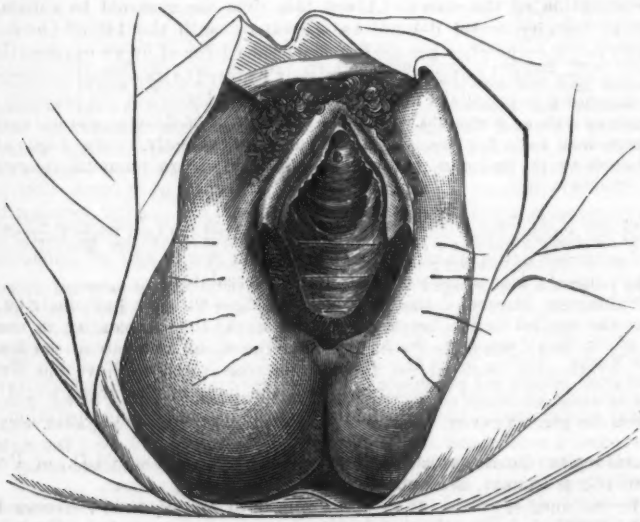
In the number of the *American Journal of the Medical Sciences* for July, 1873, page 140, Dr. John Ashhurst, Jr., in an article on iodoform, expresses his "doubts whether drugs are absorbed to an appreciable amount by suppurating surfaces." As bearing upon this subject, and for the benefit of those who might be led by so high an authority to omit due

caution in the external use of active drugs, I desire to state that recently in a case of a severe and painful suppurating burn, occurring in a woman, I ordered an ointment containing fifteen grains of powdered opium to the ounce. This was applied more freely than I anticipated, probably two ounces being used in the dressing, and within twelve hours narcotism was developed to such a degree as to seriously endanger life.

DOMESTIC SUMMARY.

Treatment of Laceration of the Female Perineum.—Prof. D. HAYES AGNEW (*American Supplement to the Obstetrical Journal of Great Britain and Ireland*, June, 1873) speaks, after further experience, with great confidence of the value of his operation described in 1867 (*Pennsylvania Hospital Reports*) for the cure of lacerations of the female perineum. "The chief points," he says, "of practical interest are the closure of the recto-vaginal septum, and the restoration of the perineal continuity at a single operation; the use only of the interrupted wire suture, and no lateral division of the sphincter, as advocated by some surgeons. The plan of treatment is as follows:—

"The bowels are freely moved early in the day previous to the operation, and, after the action of the medicine, one or two grains of opium are administered, in order to prevent the descent of feculent matter into the rectum. After etherization, the patient is placed on the back, in the lithotomy position, the limbs supported by assistants, and the sides of the laceration denuded to the extent of one inch in breadth, removing the thinnest possible layer of tissue. Next, the recto-vaginal septum is freshened. This is sometimes best



done with the scissors. This constitutes the first stage of the operation. The second consists in the closure of the parts. A long needle, supported on a handle—the eye being near the extremity—is armed with an iron thread, which has been well coated with silver. I use for the first suture iron, in order that

it may not break, as is sometimes the case with the silver wire. Indeed, the whole success of the operation depends upon the proper disposition of this suture. The needle is entered three-quarters of an inch from the margin of the wound, below its lowest point, at the anterior part of the ischio-rectal fossa, and carried forwards and upwards, until it appears on the middle of the vaginal surface of the septum, just above the line of denudation; the thread is then picked out of the eye of the needle, and the latter withdrawn, and made to pass unarmed through the corresponding parts on the opposite side, emerging on the septum, close to the first. The wire is now passed through its eye, and, as the needle is withdrawn, makes the complete circuit of the wound. so that when it is tightened, the parts are pursed together. Two or three other silver sutures are inserted, the blood carefully sponged away; or, what is better, washed away by a stream from a syringe, and the parts approximated, to favour which the limbs should be brought together. To maintain the apposition, perforated shot are run down the wires, and clamped with a pair of compressing forceps, a superficial suture is sometimes inserted with a curved needle between the deep ones.

"The subsequent treatment consists in securing the limbs of the patient together, removing the urine two or three times in the twenty-four hours, or by allowing a self-retaining catheter to remain in the bladder, having a small rubber tube attached to its extremity, in order to conduct the urine into a vessel properly placed.

"The bowels are to be kept quiet for seven or eight days with opium, and any painful accumulations of flatus in the rectum are to be removed by carefully introducing a female catheter.

"The diet should consist of milk, animal broth, eggs, cream, toast, and, after the fifth day, some solid food. The stitches are not removed until the seventh day; and on that day, or the day following, the bowels should be opened by administering small doses of castor oil, or some saline, at considerable intervals (two teaspoonfuls of oil every fourth hour). The utmost caution is to be observed in securing this first evacuation. The nurse should be directed to support the nates—the patient to avoid any strong straining effort—and, if necessary, the contents of the rectum may be softened by throwing into the bowel—very gently—a little warm water. It may happen that the rectum becomes impacted with a large mass, the expulsion of which would certainly tear asunder the tender line of union; and then it is proper to core the mass, by picking a channel through its centre, and so enlarging this opening until its peripheral walls fall together, and may be safely expelled. Once opened, the bowels should be locked up for four or five days, in order that the cicatrix may become solid."

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Rupture of Axillary Vein during efforts at Reduction of Dislocated Shoulder of six weeks' standing.—Dr. D. Hayes Agnew reports (*Phila. Med. Times*, Aug. 16, 1873) the following case of this rare accident:—

The patient, a female, aged 60 years, suffered a sub-coracoid luxation of her right shoulder. Several unsuccessful attempts at reduction had been made before she applied to Dr. Agnew for treatment. The dislocation, which was now of six weeks' standing, Dr. Agnew endeavoured to reduce by the method of La Mothe. Failing in his first effort, he tried again, having attached a fillet to the arm. Steady and persevering extension was exerted for several minutes, while an assistant's hand was held in the axilla to guide the head of the bone towards the glenoid cavity. Just after this second effort was completed without success, a sudden and rapidly forming swelling appeared over the right pectoral region, distending in an instant the entire right breast, rendering it exceedingly prominent, and forming a firm but fluctuating tumour.

Simultaneously appeared the most alarming symptoms of marked alteration in the circulation. The patient instantly became cold, clammy, and collapsed; respiration ceased, the eyelids were half closed, and the heart's action was barely perceptible over the apex, and not at all at the radials. Professor Agnew's thumb at once compressed the subclavian artery, while the tongue was drawn forward by a tenaculum, and cold douches, ammonia, artificial res-

piration, etc., instantly tried. At first it seemed that the patient would die in a condition of fatal syncope; but by the opportune presence of a strong electric battery, the current was quickly passed along the phrenic nerves, and in a few moments feeble respiratory efforts became visible. The application was continued for fifteen minutes, at the end of which time the patient had rallied so that the pulse was plainly perceptible at the wrist, and the surface commenced to show signs of warmth and life.

Preparation had meanwhile been made to ligate the subclavian, but upon removing the pressure it was found that the pulse could be felt at the wrist with a force equal to that of the other side; that the tumour was not tense and distended, and that it did not pulsate, neither did it seem to be filling with any rapidity or force.

The conclusion was therefore educed that the axillary or some other large vein had been ruptured, rather than the artery. No small vessels could have yielded so large and rapid a hemorrhage. Firm compresses were therefore applied over the swelling, and confined by a broad bandage, while pressure was kept up for two hours upon the subclavian artery, in order to lessen the supply of blood coursing through the arm.

Meanwhile stimulants were freely administered, and artificial heat constantly applied to the extremities, and in three hours reaction was established to such extent that the patient seemed out of immediate danger.

The swelling, which was accurately defined by the pectoral fascia, extended slowly backward, but did not increase in tenseness. The patient passed a comfortable night, complaining, however, of stinging pains in the arm and breast, but with no further symptoms of depression. From this time onward her improvement was rapid, the pain and swelling gradually subsiding, and in ten days she was discharged from the ward. The blood gravitating downward and backward below the fascia finally made its appearance beneath the skin, where it remained until it was absorbed, weeks afterwards. Compression was continued for several weeks, followed by stimulating liniments; and now, ten weeks afterward, having declined any further attempts at reduction, she has an arm which, although stiff and somewhat painful, seems to be forming for itself a new articulating cavity upon the inferior costa of the scapula.

Dr. De Forrest Willard appends to the report notes of 23 recorded cases of rupture of an axillary vessel produced by efforts at reduction of old dislocations of the shoulder. Of these cases, 17 are recorded in Hamilton's *Treatise on Fractures and Dislocations*, 4th ed., pp. 563–4; 3 in Erichsen's *Science and Art of Surgery*, Phila., 1869, p. 307; 1 in *Am. Journ. of Med. Sci.* for April, 1865, p. 498, and 1 in *Med. News*, for April, 1873, p. 58. Dr. Willard also includes Adams's case (*Holmes's System of Surgery*, vol. ii.) of rupture of the artery by the same force which caused the dislocation, and to which should be added the similar cases reported by Bérard and by Sir Astley Cooper (*Dislocations and Fractures*, Phila., 1851, p. 334). In Mr. Callender's excellent paper on this subject (*St. Bartholomew's Hosp. Rep.*, vol. ii. p. 96) there may be found notes of two cases not included in Dr. Willard's list. One of these is a case, like Dr. Agnew's, of rupture of the axillary vein only, in an aged female, after efforts at reduction according to White's method. In the other case the artery was ruptured by the direct force of twelve or sixteen men, under the direction of a "bone-setter."

From a study of the cases recorded, Mr. Callender (*loc. cit.*) concludes that "the occasional occurrence of this accident does not rule against the recognized practice of attempting the reduction of old dislocations, but should make us cautious of using movements calculated to overstretch the vessel, such as circumduction and extreme tension, as by White's method."

Treatment of Diphtheria with Calomel and Soda.—Dr. EDWARD L. DUER, of Philadelphia, highly extols (*American Supplement to Obstetrical Journal of Great Britain and Ireland*, July, 1873) the efficacy of small doses of calomel and large doses of the bicarbonate of soda, and the free use of nutritious food and brandy. He states that he has treated a large number of cases of all grades of severity by this plan during the past season with satisfactory re-

sults, and he acknowledges his indebtedness to Dr. Harlow, in the first instance, for the suggestion of this plan of treatment.

The two following cases will illustrate this mode of treatment.

"Grace V., æt. five years, previously strong and well; after short prodromic symptoms and a marked chill, presented all the general and local evidences of diphtheria. Her pulse was 140, quick and feeble; skin hot, face suffused; temperature in the morning, 103½; great restlessness, bowels irregular, and the tonsils, with a dark background, were almost covered with the dirty-white, closely adherent diphtheritic membrane.

"Her sister Alberta, æt. 7, was taken sick the same morning, and presented an almost identical condition. The one was put at once on the chlorate of potassa treatment; 10 grains every third hour, as recommended by Vogel, and the other on calomel and soda, ½ gr. of the former, and gr. v of the latter, every two hours. The only topical application was used alike in both cases, a weak solution of carbolic acid as a disinfectant, and the same supporting and stimulating plan was adopted in both. The following morning I noted little change in either case, excepting that Gracie had more difficulty in swallowing, though I may remark that neither of the children could swallow fluids without having them occasionally gush from the nostrils. During my evening visit on the second day, however, I noted the most marked improvement in Alberta, while Gracie's symptoms showed little evidence of yielding.

"Having now continued the calomel thirty-six hours, believing its effect to be rather in proportion to the time of continuance than to the entire quantity given, I withdrew it and continued the soda as before. By this time, in this case, the false membrane was coming away in detached fragments, and there was little evidence of local trouble left, but in the case of the other child, there had, as yet, been no change for the better. On the evening of the fourth day I found Alberta's tonsils again covered with false membrane, when I renewed the use of the calomel for twenty-four hours, with the same positive result. From this time the soda, which had been continued throughout the attack, was depended on entirely. At no time did the little patient show the slightest evidence of ptyalism, but as soon as she had been long enough under the influence of the calomel the false membrane seemed to yield up its connection with the tonsils, while at the same time the general symptoms began rapidly to abate. On the morning of the fifth day, the temperature had fallen to 99° and the pulse to 90, and from that time she steadily improved, and convalesced under the use of tonics and nutritious diet.

"On the other hand, Gracie, to whom the potass. chlorat. had been given, continued so alarmingly ill that I was induced to substitute the calomel and soda treatment on the fourth day, and with a like immediate result so far as the local trouble was concerned, but her convalescence, unlike her sister's, was protracted, tedious, and subsequently complicated with bilateral paralysis of the palate and lower limbs.

"In the course of a few weeks, I had occasion to treat five other children in this family, and it is scarcely necessary to say that the same plan was adopted, all responding quickly and positively to it."

—

Excessive Vomiting during Pregnancy.—Dr. M. A. Pallen, formerly Prof. of Obstetrics in the St. Louis Medical College, relates (*St. Louis Medical and Surgical Journal*, September, 1873) an interesting case of this in a patient whom he was called, July 16th, by Dr. Alleyne to see in consultation. Dr. A. stated that the lady was in the sixth month of pregnancy and would not retain anything on her stomach—no food, no drink. He stated that unless she was relieved she would die for want of nourishment, and that the induction of abortion was the remedy. Dr. P. found her with a pulse of 96, incessant nausea, vomiting whenever anything was taken into the stomach; sleeplessness at night or during the day, no delirium, no tinnitus aurium; no dimness of vision. I claimed a delay of twenty-four hours to try two remedies heretofore untried. One was the hypodermic injection of morphia over the region of the stomach, and the other was the injection of beef essence and brandy into the rectum. On the next day we again visited our patient. The remedies had done no good.

She vomited, as ever, the little ice-water she took, and the injections could not be retained at all.

Dr. P. then ascertained by examination with the finger that there was granular erosion of the cervix, and was of the opinion that nothing effectual could be done short of abortion. Of the various methods recommended for that purpose, he determined to employ that of puncturing the membranes for the following reasons: "The child was not viable and could not be saved. I have known cases, when the child was viable, as in the eighth or ninth month of pregnancy, and when I brought on premature labour to allay excessive and uncontrollable vomiting, that the vomiting did cease, almost immediately after the rupture of the membranes and before the emptying of the uterus.

"With a small-sized uterine sound I punctured the membranes. On the evening Dr. Alleyne called for me and told me that in an hour after the operation, she took, with decided appetite, some beefsteak and retained it; at night she did the same, and when we saw her in the morning, she and her mother informed us that she had slept well, and that she had a good appetite, having eaten various things for breakfast. About forty-eight hours after the operation the fœtus and secundines came away, and she made a rapid recovery.

"I am aware that there is high authority against the emptying of the uterus in cases of excessive vomiting during pregnancy. I am aware, too, of the sudden and favourable changes which sometimes take place in such cases. The experienced physician can often foresee that such will be the result, and he will persevere with his remedies. I will admit that it does happen, even when he despairs. But it also happens, that although our patients occasionally get well, when we expect them to die, on the other hand, they sometimes die when we expect them to get well. We must reason from a general rule, and not from an exception."

—

Cancrum Oris successfully treated by a Saturated Solution of Iodine.—Dr. J. G. MILLER reports (*Kansas City Medical Journal*, August, 1873) three cases of cancrum oris successfully treated by tonics and the local application of a saturated tincture of iodine prepared by putting as much iodine into the compound tincture as it would dissolve.

—

Ligature of the External Carotid Artery.—Dr. L. R. LONGWORTH observes (*Archives of Scientific and Practical Medicine*, May, 1873) that "the greatest difficulty of securing the artery and the apprehended danger of secondary hemorrhage, have so far influenced the minds of surgeons, that ligature of the external carotid, compared with that of the primitive vessel, has been a very rare operation, and would, in all probability, have been still rarer, were it not for the fact that the former operation possesses two advantages over the latter, viz., first, that it is more efficient in arresting the circulation in the parts beyond the ligature, unless at the same time with the common carotid the internal carotid be also ligated; and, secondly, that it is free from certain grave dangers incident to the latter operation consequent upon interference with the cerebral circulation and the nutrition of the brain."

Dr. L. fully discusses the relative advantages and disadvantages of these two operations, and gives the following as his general conclusions:—

"1. That ligature of the common carotid is the widest in its application, but most dangerous and least efficient.

"2. That ligature of the external carotid below the digastric and stylo-hyoid muscles is more limited in its application, but less dangerous and more efficient.

"3. That ligature of the external carotid above the digastric and stylo-hyoid muscles is the most restricted in application, but also safest and most effectual.

"4. That ligature of the external carotid on both sides has hitherto been uniformly successful, and is the most efficient measure at our command for arresting the distal circulation."

—

Ovarian Tumour removed by Enucleation.—Dr. WALTER BURNHAM, of Lowell, Massachusetts, reports (*Boston Med. and Surg. Journ.*, July 24, 1873) a case of this. It was his one hundred and ninety-ninth ovarian operation,

and he says that the operation required somewhat less time than his previous ones.

After opening the abdomen and drawing from the cyst, with Wells's ovarian trochar, nearly fifty pints of clear, limpid serum, he made a small slit through the peritoneal coat near the pedicle, and with the handle of my scalpel separated the two coats from each other to a small extent, until I could grasp them in either hand, and at once completed the separation by pulling them apart, and thus removed the entire sac proper as belonging to the tumour; while that portion composed of peritoneum was laid back upon the abdomen, that I might examine it, and wait a little for hemorrhage to start, if at all. The effects of the atmosphere, though at a high temperature, soon contracted and corrugated the peritoneum to less than half its size, when I separated the cyst from it. On examination of the inner surface of the peritoneum, I found the vessels spread out upon it in a complete network, like that of an inflamed conjunctiva largely magnified; but there was no hemorrhage, except one small artery where I divided the peritoneal coat; and here a small clot had formed, and I thought best to put on a ligature, as I did also on one upon the omentum, leaving the ends out at the lower angle of the incision, to keep it open for the discharge of any matter that might be deposited in the cavity.

After waiting more than an hour to allow the force of the heart to return, the sac was covered by a warm napkin before returning it into the abdomen. But finding no bleeding, I then placed it back into the cavity of the abdomen, and closed the wound by three sutures, one of which I passed through the edge of the peritoneum where I made the slit, to secure that point to the opening, in case any clot should form and require suppuration to remove it. Over this, adhesive straps and a compress of cotton, to fill the vacuum of the abdomen, were placed upon her, secured by a straight bandage. The patient made a speedy recovery.

Dr. B. remarks, somewhat singularly, that he *believes* "Dr. Miner, of Buffalo, was the first to recommend this mode of treating the pedicle," and adds that "much credit is due to him for what seems to me a very great improvement over all others."

—

Recent Cholera Epidemic in New Orleans.—Prof. Jos. Jones, in a letter to the editors of the *Boston Med. and Surg. Journ.* (July 31, 1873), states that this epidemic "which commenced in the early part of February and disappeared in the latter part of June, was less severe than in the two previous visitations of this pestilence in New Orleans. Although the fatal cases were marked by the prominent symptoms of Asiatic cholera, and presented, upon post-mortem examination, its characteristic lesions, the vast proportion of the cases, 'when taken in time,' yielded readily to treatment, and the mortality has been comparatively small. Thus, during the months of February, March, April, May, and June, 117 whites and 116 blacks (total, 233) died from what was registered in the official mortuary reports as cholera sporadica; and cholera morbus and cholera infantum destroyed 62 whites and 22 coloured; diarrhœa and dysentery, 109 whites and 48 coloured; total deaths from all intestinal diseases during the past six months, white 366, coloured 234 (total, 600).

"This is comparatively small mortality from cholera in a population of 200,000; and as the whites constitute about three-fourths, and the coloured people only one-fourth, it is evident that cholera, as well as other intestinal diseases, has been much more fatal amongst the coloured population. This difference appears to be due in a large measure to the fact, that as a general rule, the coloured people occupy the more unhealthy and crowded portions of the city, and are less careful in their habits and diet.

"The sudden subsidence of the cholera, is not to be referred to the sanitary condition of the city, which could not, perhaps, be much worse at this season of the year; nor to the universal employment of any special means of disinfection. Numbers of cases have occurred in localities where no disinfection was practised, and it is probable that only the severe and fatal cases have been reported to the local sanitary officers. The peculiarly mild character of the recent epidemic, may be due to certain unknown conditions of the atmos-

phere and soil, and to the heavy rain-fall, almost twenty-two inches of water having fallen during the past six months."

Child's Head Impaled on a Pitchfork.—Dr. W. M. GOODLOVE reports (*Clinic*, September 6, 1873) a case of this which is interesting as affording another example of the many already recorded of the deceptive nature of the early symptoms in injuries of the brain.

A child, thirteen months old, in the arms of her sister, was near the side of a stack of grain, when a pitchfork was let slide down the stack with the tines forward, one of which entering the child's head at the junction formed by the right parietal and frontal bones, passing obliquely downward, penetrating the right hemisphere of the brain, and emerging beneath the malar bone about half an inch in front of the ear. The little girl (still holding the child) withdrew the fork before the father could get to her assistance.

When seen by Dr. G., thirty minutes afterwards, the child was *nursing at the breast*. After the fork was withdrawn the child cried. It caused no shock.

The next day, July 23d, Dr. G. found the child sitting in the mother's lap laughing, showing no signs of pain; bowels were moved twice through the night; temperature was normal; voluntary motion was good; the pulse was good. It had rested well all night, except during paroxysms of coughing. Here I learned that the child had had a severe whooping-cough, and when it coughed a slight hemorrhage ensued from the orifice of the wound, but not of much moment.

24*th*. Patient resting well; cough not troubling it so much; pulse accelerated; pupils contracted; no nervous excitement yet developed. The child does not nurse so often. Its head has been kept elevated and the wound discharges more freely.

25*th*, 7 A. M. Patient has taken more nourishment to-day. It is marvellously better than yesterday. The pulse is somewhat stronger, though oppressed. Ice applications still continued. 8 P. M. Wound inclined to heal below; cough better, bowels not moved. It will not nurse. 10.30 P. M. Patient very restless, with quick pulse; disturbed sleep; anorexia; sub-sultus tendinum; face flushed; pupils contracted; wound inclined to heal.

26*th*, 7 A. M. Tetanic symptoms decidedly present. Inflammatory and arterial action abated. Total paralysis of the right eye and left extremities; contraction of pupils and some squinting of the left eye.

27*th*, 9 A. M. Convulsion alternate with coma.

28*th*, 2.30 A. M. Patient has rigors at times and is comatose at times. Death in convulsions.

We have omitted the account of the treatment.

Gunshot Wound of Stomach and Kidney; Recovery.—Dr. BROOKS reports (*Chicago Med. Journ.*, Sept. 1872) the case of a man, æt. 30, who accidentally shot himself at 11 A. M., Dec. 31, 1871, in the epigastrium, the ball, a half ounce one, taking a downward, backward, and slightly lateral direction. When seen by Dr. B., five minutes afterwards, there was great nervous shock, cold, clammy skin, great prostration, constant nausea, pain in the stomach, restlessness, respiration feeble, and some thirst. Surface wound about two inches to the left of the centre of the sternum, having cut the size of the ball from the lower edge of the cartilages of the false ribs. Directed him to be removed to an upper room and laid recumbent, head low, a cloth wrung from hot water to be placed over the wound and to be kept constantly applied, small pieces of ice (as large as a small filbert) placed in his mouth. An opiate was also given a few hours afterwards. At 8.15 P. M. vomited between one and two pints of coagulated blood; at 9.10 P. M. passed about three pints bloody urine, resembling the blood that flows from the veins of an individual killed by lightning; a fourth drachm was now given. At 10.20 P. M. reaction commenced feebly; from 11 P. M. to 3 A. M. slept quietly, and on awaking vomited a large quantity of blood, which was the last blood vomited; at 4 A. M. passed an ordinary urinal half full of fluid, mostly blood; from this time he urinated about once in six hours, blood always passing till the fifth day, when the urine was of a natural colour and quality.

"After the first sixteen hours he had no pain whatever, and slept well every night. At the expiration of forty-two hours he was allowed one teaspoonful of iced milk, in four hours two teaspoonfuls; this was gradually increased till on the fifth day he was allowed one-third of a tumbler of the iced milk every six hours. Not an untoward symptom occurred. The hot cloth wet, was kept applied up to Jan. 6, 1872. No other medicament was used. The fourth day the bowels moved naturally. On Jan. 8th, he was removed to his home in the country. On or about May 1st, he returned to the city, and followed his occupation as a carpenter. On examination the 7th of May, I found the ball under the skin, about two and a half inches from the spinous processes of the vertebræ, and nearly outside the eleventh rib of the left side, having passed out of the abdominal cavity between the eleventh and twelfth ribs. The direction of the ball, the vomiting of blood, the passing of blood by the the urethra, the character of the shock and prostration, point unmistakably to the cutting of the stomach and left kidney by the ball."

RECLAMATION.

To the Editor of the American Journal of the Medical Sciences.

SIR: Surgeon G. A. Otis, who has prepared, under the direction of Surgeon-General Barnes, United States Army, the Surgical History of the War of the Rebellion, at page 26 of the Introduction to the First Part lately published, has called attention to a paper of mine, written early in 1871, and published in the fifty-fourth volume of the *Medico-Chirurgical Transactions*, on the Classification of Injuries and Surgical Operations in time of War, in a way that makes it imperative on me to reply at some length. Although the general purpose of my paper is briefly referred to at the commencement of Dr. Otis's remarks upon it, the words subsequently quoted without their context, and the comments upon them, might cause it to appear that I have attempted to depreciate the professional labors of the surgeons of the United States during the great struggle, the miseries of which they were doing their best to alleviate. Nothing could have been further from my intention, and it appears to me that such an interpretation is not warranted by anything contained in my paper. I have always admired the zeal and the immense self-sacrificing devotion of the United States surgeons, as well of the volunteer service as of the regular army, during the prolonged war, and have never expressed any other sentiments on the subject. But I have thought, with regard to the compilation of their labours, that much time and pains would have been spared had there been employed a system of classification of the injuries, which they had not only to treat but also to tabulate in statistical returns for official information, different from that which was used for the purpose. At the same time I did not ascribe it as a fault to any one that a different classification was adopted from that which seemed to me a more efficient one. I knew that during the Crimean War for the first five months, chiefly in consequence of no efficient system of classification having been supplied, the English statistical returns were found so valueless for scientific purposes that the attempt to use them in detail was altogether abandoned. It was from experience of the results of the form of classification which was employed in 1855 in the Crimea, and from much consideration of the subject, that I was led to consider that form the best calculated to insure accurate returns of the injuries of war in the first instance, and to secure facility of compilation afterwards, but I did not pretend to dogmatize on the subject; what I asked in my paper was that this form should be considered along with others by competent persons. Dr. Otis writes that "systems" must be made to conform to national habits and organizations, but this can hardly apply to systematic returns of injuries which are universal in their nature and quite uninfluenced by national peculiarities. The best form of classifying the wounds

resulting from war, whatever it may be, in one country must surely be the best in another country.

Dr. Otis quotes part of my remark as to the figures of the American Field "Tabular Statements" being "almost practically worthless." It may be observed that Dr. Otis himself, at page 25 of his Introduction, quotes from an official circular that "the surgical statistics of the war were absolutely worthless" previous to September, 1862, owing to the nature of the returns then in use. I only discussed the question whether the revised forms of returns subsequently adopted were calculated for giving statistical information of as much scientific value as other forms of returns. In the surgical history, so far as it has gone, Dr. Otis has reclassified the figures of the field returns, after great research and labor, in forms essentially different from the original ones; forms very similar indeed, though more extended, to those which I advocated for the primary returns. The remark of Dr. Otis, that a classification which may be excellent for the British Army with its corps of trained medical officers could not have been advantageously introduced into the American service chiefly attended by civil surgeons, seems to be an unnecessarily disparaging one. The British surgeons had no special training when the form of classification which I described was placed in their hands, and I never heard that they found any difficulty in following its directions.

I regret very much the unintentional mistake (Dr. Otis calls it a misrepresentation) which I made as to the number of persons at one time engaged in preparing the records of the war in the Surgeon-General's office at Washington. Some years ago an American military medical visitor at Netley, speaking of the energetic and vast scale on which the history of the war was being prepared, told my colleague, Dr. Mackinnon, and myself that there were quite two hundred clerks engaged in preparing the records when he left Washington. He certainly did not mean the purely surgical records, and I did not understand him to mean so, but the records in all their branches; and I was surprised on referring to my paper after reading Dr. Otis's comments upon it to find I had limited the statement to the surgical statistics. I can only account for it by the surgical results of the war being uppermost in my mind at the time of writing the paper. But I think any one fairly reading my remarks would not fail to notice that I intended the general history of the war, for in the next sentence, when comparing the number of persons engaged in compiling the English history of the Crimean War, I did not confine myself to the compilers of the surgical part, but spoke of the whole of the historical record of the war. I fell into an error, however, for which I express my regret, and which I am glad Dr. Otis has corrected; and I can only add, that as I sent copies of the paper to the Surgeon-General's office as soon as it was printed, if Dr. Otis or any one had then indicated the exaggeration in my statement, I would have gladly taken steps to correct it myself.

I refrain from entering upon personal topics, such as the omission in the work under notice, of all mention in the lists of writers published at p. 23 of the Introduction of an essay of mine on Gunshot Wounds in *Holmes's System of Surgery*, which was reprinted in the United States during the war, and even made one of the articles of the standard supply table of the military hospitals, and some similar matters, but will merely repeat my regret that the remarks in my paper on classification should have given the offence to Dr. Otis which they evidently have done; they were not intended to be offensive to any one. What I am especially anxious to explain is, that my paper, which I know not many United States surgeons are likely to see, in no way has reference to the professional work done by American surgeons in the field, or to anything else but the arrangement of the returns in which their work was ordered to be classified and tabulated for statistical purposes. I must leave those who possess the paper to judge whether the remarks in it are worth any attention or not.

I have the honor to be, etc.,

THOMAS LONGMORE,
Surgeon-General.

NETLEY, July 7, 1873.

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